

# AIRFIX

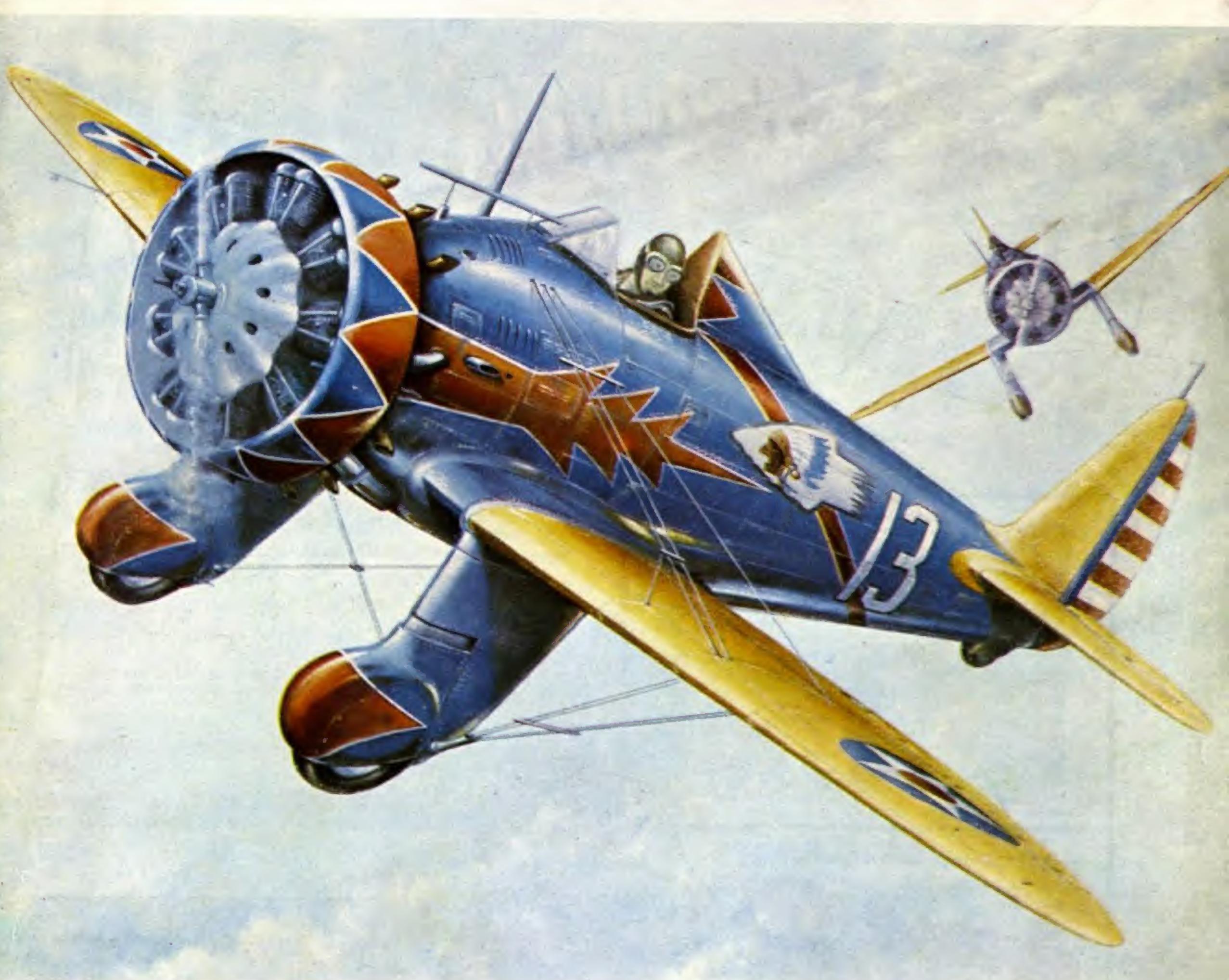
magazine

FOR PLASTIC MODELLERS

MARCH 1970

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THIS  
ISSUE**

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Pz 38 (t) tank and 54 mm scale soldiers



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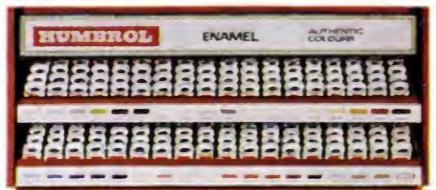
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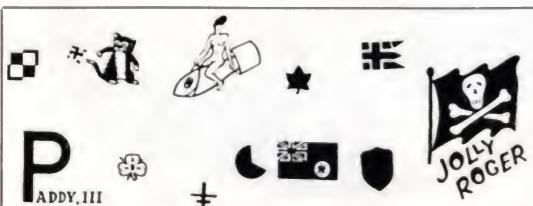
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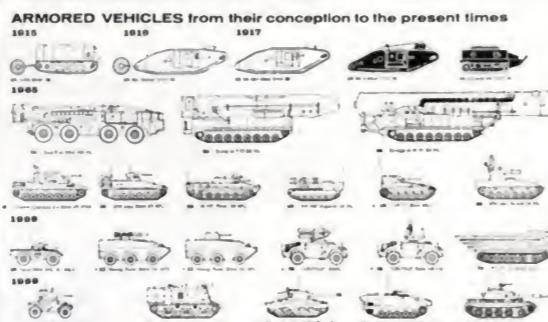
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Note: This sheet was designed by Richard E. Gardner who has provided the instruction sheet drawings and details.

#### A.23. RAF FIN FLASHES 1940-47

This sheet includes Prototype, kill, Polish and Czech markings in addition to the fin flashes for 1940-42 and 1942-47. 4/9

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FOR PLASTIC MODELLERS

March 1970

Volume 11 No 7

Editor Chris Ellis

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**Left:** This latest picture released of one of the Hawker Siddeley Harrier demonstration aircraft reveals numerous small bumps and bulges that do not appear on the Airfix model. Note the red/white-outline 'trade' name on the nose.

**Below:** Hawker Siddeley trio. Nimrod XV230, Buccaneer XV347 and Harrier XV755 seen at Hatfield before a demonstration given to the Press in January.

THE low level strike Buccaneer, the anti-submarine Nimrod and the Harrier vertical take-off fighter, all products of the Hawker Siddeley organisation, were shown together for the first time recently at a display at Hatfield airfield.

Before the flying display Air Marshal Sir Peter Fletcher, Vice-Chief of the Air Staff, spoke about the RAF's ability to use the three new aircraft now entering Squadron service in the 1970s and gave an up-to-the-minute progress report on their development.

The Buccaneer on display, XV347, was one of the first to be transferred from the Royal Navy to No 12 Squadron at Honington and appeared with the Squadron's fox symbol painted on the fuselage sides. More than one hundred of these aircraft will be in service with the RAF after the Navy gives up its fixed wing role. Twenty-six of these are now on the production line at Brough and No 12 Squadron is working up to operational status and will be the first RAF Squadron to share the offensive maritime role with the Navy until the expected phase-out of fleet carriers takes place in 1972. Certain changes have been made to the aircraft's low level strike capability



the aircraft told me that he and his colleagues do an almost automatic hop, skip and jump when they come to the centre section of the aircraft through years of jumping over the main spar in the Shackleton. The Nimrod is superbly equipped with all of the latest electronic equipment for detection and subsequent sinking of submarines whether conventional or nuclear powered.

A central plotting room takes information via computers on to two large displays from which an attack is co-ordinated. Naturally much of the equipment is still secret and I was able to see little of the 'nuts and bolts', but I did gather that the aircraft is already a firm favourite with St Mawgan crews and looks like being an excellent replacement for the time-honoured Shackleton. With a range of 4,000 nautical miles, the Nimrod has the ability to get speedily to a given patrol area and once there either search it quickly or remain on patrol for several hours. Its high speed dash capability enables it to close a search area quickly—a very important quality when dealing with nuclear submarines.

Having followed the development of the Harrier through its P1127, and Kestrel stages it was pleasing to see one of the first operational aircraft from RAF Wittering's Operational Conversion Unit on display. This aircraft, XV755, displayed Wittering's badge on its fin and put up an excellent show of vertical take-off manoeuvres and also showed that it was almost as controllable as a helicopter in forward, backward and side-to-side aerobatics.

The news that 12 of these aircraft are on definite order for the

**IN  
THE  
AIR**



**by Alan W Hall**

and it was said that the Buccaneer will now have a better weapon capability over extended ranges than any other of our tactical aircraft in service. Additional wing stations have been provided as well as those in the bomb bay for carrying a full range of conventional weapons such as Martel, the new ASM. The missile is expected to be a most valuable stand off weapon when attacking ground installations or sea targets.

The Nimrod in the display was XV230, the first to be delivered to the Operational Conversion Unit at RAF St Mawgan, Cornwall. This aircraft has recently been to Canada for a full operational sortie and was demonstrated to the Canadian Armed Forces and to United States' representatives. Although the RAF had only had the aircraft for two months its ability in the anti-submarine and patrol role in very bad weather with considerable icing and bad visibility showed up well.

Hawker Siddeley's order book for the Nimrod is 38 aircraft to be completed in 1971. It is to be hoped that countries having aircraft in the anti-submarine role will consider the Nimrod as a replacement type for their existing equipment particularly in view of the fact that it is the first pure jet anti-submarine aircraft in the world.

I was able to look inside the Nimrod for the first time and was pleasantly surprised at the extremely comfortable conditions when compared to its predecessor, the Shackleton. One of the aircrrew with



This view of Harrier XV755 shows the camouflage pattern on the upper wing surfaces. The badge on the fin is that of RAF Wittering, and the aircraft comes from the Harrier conversion unit stationed there.



**Above:** Nimrod XV230, one of the first aircraft to be delivered to the OCU at St Mawgan and also the aircraft to be shown to the Press at Hatfield is seen in its natural element low down over the sea during a search and strike mission. An early chance for an 'operational' sortie came late in January when the aircraft was diverted from a training flight to shadow a Soviet Navy task force in the Western Approaches.

**Below:** This view of the upper surfaces of the Nimrod reveals the position of the roundels and extensive flap areas.



**Air Superiority Fighter**

McDonnell-Douglas have been given the contract by the United States Government for the development of a new fighter, the F-15 for use by the USAF in the future.

The need for a new fighter has become apparent through the development of Soviet aircraft of similar capability in the last few years. The entire air war over North Vietnam has finally convinced the US Government that an aircraft superior to the present Russian fighters is needed as the ratio of superiority in Vietnam has only been about 2.5 to 1. In the Korean War the US margin of superiority in air-to-air combat was approximately 12 to 1 but since that time the gap has narrowed dangerously. Soviet designed fighters have generally been more manoeuvrable and have had better acceleration than their US equivalents. On the other hand US fighters have consistently had better radius of action, fire power, avionics and payloads.

It is not altogether realised that the Phantom will be over 20 years old in the mid-1970s. During the same period the Soviet Union has been steadily improving their aircraft's air-to-air capability with the regular introduction of new fighter aircraft. A whole new family of high performance fighters was shown at the July 1967 Moscow Air Show which, when developed, will possess greater capabilities in terms of manoeuvrability, acceleration and weaponry than the Phantom.

The new F-15 will be a single place fixed wing twin turbo-fan fighter in the 40,000 lb weight class. Although designed to provide and maintain air superiority, the aircraft will have a substantial air-to-ground capability as well. It is to be capable of speed in excess of Mach 2. The F-15 will have a mixed armament of air-to-air weaponry including both medium and short range missiles and an internal rapid firing gun. Employing advanced engine technologies and aerodynamics as well as light weight materials the F-15's thrust-to-weight ratio will be greater than one-to-one.

The USAF received F-15 design proposals from three primary aircraft manufacturers in the States—Fairchild Hiller, McDonnell-Douglas and North American Rockwell.

The engine will be developed by General Electric and Pratt & Whitney.

It is hoped that the first flight of the F-15 will be in 1972 with aircraft being in service by the middle of the 70s. F-15 flight testing will begin with twelve aircraft to complete the contractor tests necessary to develop both the single-seat and the trainer version of the aircraft. An additional eight aircraft will be used to perform operational tests and three static and fatigue test airframes will be used.

Over the past three years the USAF has spent some \$75 million towards F-15 development including \$2 million on design studies and over \$70 million on contract definition, engine, avionics and gun development.



**Above:** Also at Hatfield during the military aircraft demonstration was Trident 3B G-AWYZ, the first of its kind to fill the order for BEA. To give extra take-off power the aircraft has been fitted with a fourth engine in the tail and the fuselage has been extended to take 171 passengers. **Left:** 'Shiny Twelve'. The fox badge taken from No 12 Squadron's crest and used on the fuselage side of the Buccaneer demonstrated.



# The British Army '14-18

## UNIFORMS AND REGIMENTS DESCRIBED BY DAVID NASH

### Part 9: Divisional flashes and emblems

THE subject of British Army flashes of the Great War was briefly touched upon in AIRFIX magazine, August 1969. Flashes are, however, so closely connected with the finish of any models representing the 1916-18 period that additional information is obviously required.

Transport badges evolved in much the same way as tunic flashes. Initially they followed no set pattern with each division setting its own rules. Thus, in the 47th (London) Division the CO of the Divisional Supply Train chose an eight-pointed star, being a simplified ASC cap badge, as the markings for his vehicles. It had a square border, coloured blue for the divisional troops, yellow for the company attached to the 140th Brigade, green for the 141st and red for the 142nd.

In November 1915, divisional trains were ordered to mark their vehicles with the same sign as used by the supply columns, and in the 47th the badge was slightly reduced in size so that it could be placed on the sides of the GS Wagons, coloured edges being retained. During the winter of 1916, GHQ ordered that all vehicles within a division were to be marked with this sign and that no variations were allowed. In compliance with this the 47th division adopted the star within a blue border. Since individual units could no longer be recognised from the divisional sign it was a natural step to design secondary badges, with the result that by the end of the war most vehicles were marked with two insignia. These secondary badges were not restricted to rear area units and the infantry often marked their battalion transport with a flash closely approximated to their tunic or helmet badges. Divisional signs were also painted on billets.



Below: Roll-call of a Seaforth Highlanders battalion at Beaumont Hamel after the first day's fighting in the Somme Offensive, July 1, 1916. Of note is the large white or yellow 'C' on the shoulder obviously derived phonetically from the regimental title. A vertical bar is painted each side of the helmet, known to have indicated the battalion number. The bar was green in the case of the 2nd battalion but the unidentified battalion here has a lighter bar, possibly yellow (Imperial War Museum photos).



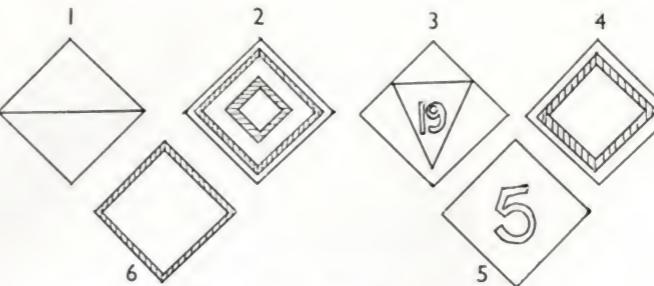
Above: Typical divisional flash seen on the shoulder of a sentry from 182nd Infantry Brigade. He is also wearing a single gold wound strip on his cuff below the single good conduct badge indicating two year's service.

followed the flash. The 8th Lancashire Fusiliers, for instance, wore a green painted helmet with a white 8 within a red hollow diamond. (All infantry units noted above were first line Territorials and are frequently designated 1/8th Lanes Fus, etc, the '1' indicating 'first line'.)

A particularly colourful unit were the 9th Northumberland Fusiliers. On the left side of their helmets was a yellow V on a gosling green square; officers wore this same badge on their backs below the collar. From May 1918, in addition, a red triangle was worn on both shoulders. In October 1917, the unit received a draft of men from the Northumberland Hussars, who were allowed to keep their old cap badges. The battalion transport had on the tail boards the signs illustrated; Company designations being A, B, C or D; and the wheel hubs were painted black bearing a red triangle, the axle ends being highly polished brass.

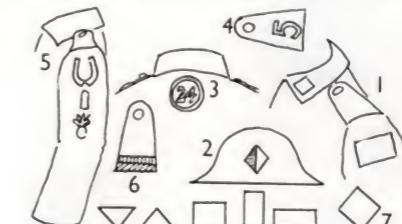
Prior to the 1918 re-organisation the infantry of the 42nd division had similar flashes but with the letters A, B, C and D in place of numbers. Helmet markings within the division closely

For key to symbols see table immediately below drawings.

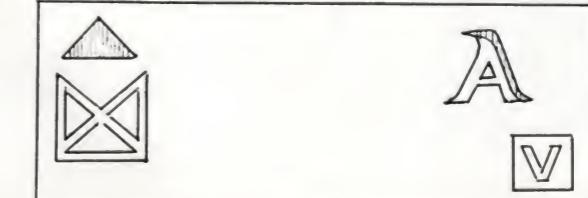


42nd (East Lancs) Division, divisional markings

Unit	Design of Flash (see drawing)	Basic Colour	Detail
42nd Div	1	—	White above red
Div HQ Staff	2	Green	Green, red, green, yellow, green, from the centre
19th Mobile Vet Section	3	Red	White triangle, red 19
239 Divisional Employment Coy	4	Black	Yellow hollow diamond
RA HQ	4	Blue	Red hollow diamond
210 Brigade RFA	5	Blue	Red 1
211 Brigade RFA	5	Blue	Red 2
42nd Div Ammo Column	5	Blue	Red 3
X/42nd Trench Mortar Bde	5	Blue	Red X
Y/42nd Trench Mortar Bde	5	Blue	Red Y
RE HQ	4	Red	Blue hollow diamond
1/7th (Pioneer) Northumberland Fusiliers	5	Red	Green 'NF'
427 Field Coy, RE	5	Red	Blue 1
428 Field Coy, RE	5	Red	Blue 2
429 Field Coy, RE	5	Red	Blue 3
1/1st East Lancs Field Ambulance	6	Blue	Red edge, yellow 1
1/2nd East Lancs Field Ambulance	6	Blue	Red edge, yellow 2
1/3rd East Lancs Field Ambulance	6	Blue	Red edge, yellow 3
42nd Div Train (ASC)	4	Blue	White hollow diamond
428 Coy (ASC)	4	Blue	White hollow diamond, yellow 1
429 Coy (ASC)	4	Blue	White hollow diamond, yellow 2
430 Coy (ASC)	4	Blue	White hollow diamond, yellow 3
431 Coy (ASC)	4	Blue	White hollow diamond, yellow 4
42nd Div MT Coy	4	Blue	White hollow diamond, yellow MT



Above: Some emblems on uniforms. Key: (1) Badges of 7th Leicesters as described in text. (2) Red/yellow 'diamond' on helmet of 2nd Bn Middlesex Regt. (3) Back badge of 7th Bn South Wales Borderers, in green (derived from old regimental title 24th Foot). (4) Red '5' of 5th Bn Royal Inniskillen Fusiliers. (5) Composite arm badges of 63rd Trench Mortar Battery; yellow horseshoe and shell and blue grenade. (6) Red/blue cloth shoulder strap slide of 4th Bn Royal Fusiliers. (7) Grey company patches of 7th Bn Royal West Kents, indicating (from left to right): officers, battalion HQ, A, B, C, D companies respectively. Below: Vehicle markings of the 9th Northumberland Fusiliers showing tailboard of A Company truck. Red triangle, white geometric device, 'A' blocked in light and dark shades of red, and yellow 'V' on green square. 'V' is symbolic of old title, 5th Foot. Far right is wheel hub of same vehicle, black with red triangle round polished brass cap which carries a rope hook painted black.



As a conclusion to this series I should like to examine some points raised by readers. In answer, first, to several queries, the composition of the Infantry, as described in July, omitted the Reserve battalions for simplicity. They were numbered after the regulars, however, and before the Territorials; usually they received the number 3.

The leather equipment captioned as pre-1908 was in fact part of a bulk order for one million sets placed by the War Office in 1914 in anticipation of the fact that the ability to produce the 1908 web equipment was initially insufficient to meet the expanded demand. The 'South African War' equipment was used only by a relatively small number of non-fighting troops, such as certain RAMC units.

The question of the colour of boots worn by the original BEF calls for some clarification. In 1914 the BEF went to France in brown boots for active service. Each soldier was issued with two pairs and, to quote from the *Regulations for the Clothing of the Army* (Part I, Appendix VI, para 8): 'Ankle boots and highland shoes in wear will be kept soft with grease. They will be blackened only for full dress parades and walking out.' Once on active service, however, it was more than likely that as soon as the brown greased boots became wet they were replaced by the black pair kept for parade use and eventually the point must have been reached when brown and black were worn indifferently. Most war-time produced boots were given a brown finish and were kept well greased. Examination of 'as new' unissued boots of the period in the stocks of the Imperial War Museum reveals both brown and black examples, however.

In July's magazine it was stated that the HLI had black buttons. They were in fact gilded and it was the Cameronian Scottish Rifles who wore this light infantry distinction.

Finally, cavalry were issued with a specially adapted box respirator, which was worn on their backs.

This concludes the current series. Next month we start a short series on the Seven Weeks' War of 1866, a conflict of minor historical importance but of great interest to modellers and wargamers.



# Military Modelling

by

Chris  
Ellis

## MORE M3 CONVERSIONS

ONE of the easiest exercises in kit converting is making the Airfix M3 (Lee) into the late production model and the M4 (Sherman) into the early M4A2 (as used by the British at Alamein), simply by switching parts from the basic kits. The pictures really explain what is involved. For the late M3, omit the bogies from the kit and replace with those from the Sherman kit. You need to cut off all locating pins and just cement them in place. Omit the side door and block the aperture flush with a piece of plastic card, adding a vision port. Cut the gun barrel from the Sherman kit and substitute it for the gun barrel in the M3 kit. Add new stowage boxes on the hull front as shown in the picture far right, and similarly add a hull top vent from a folded down Churchill wheel or similar scrap part. For the M4A2 model, use the M3 bogies, again removing the locating pins and cementing them in place. In the hull front, drill two holes one each side of the centre line, and add 5 mm lengths of heat-stretched sprue or thin pins to depict machine guns. Finally on the rear hull decking, cut and file away the moulded flap and coaming just aft of the turret, leaving only the side sections which include the moulded filler caps. Cut a rectangle of paper 11 mm long X 9 mm wide, score each way to depict a grille, and cement this centrally with the front edge in line with the original coaming line. Now add two extra filler caps each side, these to be in line at 4 mm centres, with the rearmost pair on the centre line of the new grille. For a very early M4A2 you can use the M2 75 mm gun from the Lee, adding a counterweight on the muzzle from a 3 mm wide strip of Sellotape. Most M4A2s had a M3 gun, as in the basic kit, and if you have a spare Sherman gun it is best to use this, as in my model. Cut a new superstructure backplate, without the M4's cut-out section, and cement this over the existing backplate.



Above top: M3 (left) altered to late production type, showing side aperture filled in and new bogies; on right is M4 converted to early M4A2 with new engine decking detail and M3 type bogies. Above: The two models completed, showing changed bogies

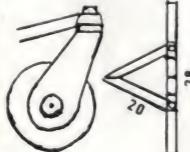
This lower group of illustrations shows the features of the T1 Mine Exploder on the M3 Medium Tank. Left: Completed model from top shows rigging detail and the twin front rollers each with its own support. Below left: Model under construction (see text for key). Below: Full-size drawing for discs and roller frame supports. Below right: Completed model from side.



The essential details for making the late production M3 and the early production M4A2 are shown in these views. Above: Late M3 showing the 'second type' bogies as fitted to most Shermans. It also has the longer M3 75 mm gun, again as fitted to the Sherman. Note absence of side doors. Right: Front view of later M3 shows stowage boxes on hull front and on hull top forward of turret. Note also the extra vent on the front left corner of the hull top. Below: Early M4A2 showing the twin fixed machine guns in the hull front and 'first type' bogies as fitted to most M3s (US Official).



FOR the attractive T1 Mine Exploder conversion, make up the M3 (Lee) straight from the kit. Then drill a central hole in the hull front just above the transmission cover. It is obscured by the gun in the picture but I've put a white 'dot' on the model just below the actual hole. Then add a plastic card bar across the nose (1) between the transmission 'bumps'. A similar bar at the back goes between the idler axle bosses. Use the drawing to cut out 18 roller discs (3) from thick card and the roller supports (2), two for each assembly. Each roller assembly is 12 mm wide and I used a length of cocktail stick for the spindle, drilling the centre of each disc and cementing them equi-spaced on the spindle. The top bar is a 3 mm wide strip of plastic card, dimensions of the front assembly being given (in millimetres) on the arrangement sketch. Note that there are two front arms made from plastic card. The arm for the single rear bogie, however, is a stabiliser from the Flak 88 kit (4). For bogies I used folded down Churchill wheels. There is a centre strength plate on the front carrier bar, 8 mm wide, and the front arms cement each side of this and are covered with 'plates' of plastic card. Finally a 34 mm length of cocktail stick is cut to form a kingpost, with a channel at the top formed from two 6 mm strips of Microstrip. The stays (which prevent the rollers sinking into shell holes etc) are from cotton as in the pictures.



## photoPAGE

More rare pictures from readers with captions by Michael J. F. Bowyer. A free Airfix kit is awarded for every picture published, but please note that there is usually a delay of some months before publication due to the limited space at our disposal.



Key: (1) Excellent flying view shows all silver Meteor 4 RA387:0-10 of No 203 AFS, Driffield, in 1952 (G. P. Young). (2) Mosquito FB VI. NZ2331: YC-D, in silver with black A/D panel in about 1950. (3) P-51-D-25-NT Mustang, NZ2403:03 od of a RNZAF Territorial (Reserve) Squadron in 1950; note the Squadron Leader's marking. Colour of checks not known, possibly light blue and black (R. J. Lane).



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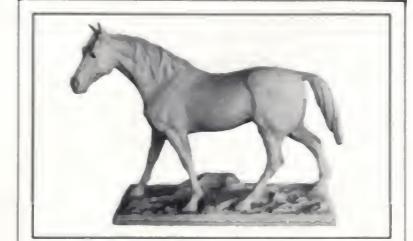
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# PzKpfw 38(t)

FAMOUS CZECH/GERMAN TANK  
IN MODEL FORM  
BY KENNETH M. JONES

Above: The PzKpfw 38(t) was one of the most important German tanks in the early part of the war. Model is finished in dark grey and marked to depict a vehicle in France in 1940.

ORIGINALLY known as the TNHP-S by the Czechs, this tank—which was very advanced for its time—was used by the Germans from March 1939 after the invasion of Czechoslovakia. The Germans carried on the production of the vehicle and, re-armed with a German 37 mm tank gun, it formed about a quarter of German tank strength until its replacement as a battle tank in 1942. The extremely reliable chassis was subsequently used for SP mounts and for the little Jagdpanzer 38 Hetzer. Any one who models early war vehicles or dioramas of the early conflicts can easily add one or more of these interesting little vehicles to their collections. The model is not too difficult to build, and if you have done a lot of major kit conversions and tank kit butchery, you should have a go at scratch building this tank. The only commercial parts used are for the running gear. The rest comes from the scrap box, plastic sheet, or card and balsa—if you use it in preference to plastic sheet. My model is entirely from plastic card.

Now to the model itself. Mark out the parts for the hull and chassis combined on to 20 thou styrene sheet using the side elevation on the plan. Note that you will have to lower the

rear sidewalls from the front of the engine covers to cover the slope—down and outwards—of these parts. Also note that the offside (right side) wall of the hull is shorter on the top-side dimension to allow for the cranked front plate of the driver's position. Mark out a strip for the hull cross members, but allow for the .040 inch or so thickness of the side walls. In fact you must always bear this point in mind for various parts when marking out, no matter what you are building.

Cut out the parts very carefully—after embossing any rivet detail if required—and avoid rough or angled cuts by using a steel straight edge and a very sharp or new blade in your modelling knife. No matter how much your pocket money, 5d or so is a small price to pay for perfect cuts.

Build up from the bottom with strengthening gussets where necessary, using a 90° set-square to check the accuracy of the hull sidewalls when you are cementing them into place. Liquid solvent is the best by far for this job as the complete hull can be supported ready for cementing and all that remains is to run solvent into the joints. This results in a nice, clean, strong joint with no blobs of cement marring or melting the plastic. I very rarely use tube cement except when laminating plastic parts or plastic

sheet. A pure solvent like Slater's MekPak is very good. Being pure you don't need to clean the brush very often, if at all. Humbrol make a very effective liquid cement which is very good for kits and I find this better than tube adhesive; this, however, is only personal taste. Finish the hull by cementing the cross pieces into place using any supports you require. When these parts are sited you will know for sure if your cutting has been accurate.

Mark and cut out the pieces for the engine covers and hull rear plates. The little grille in the topmost part of the rear plate can be easily made by cutting the opening before mounting and representing the grille with equi-spaced strips of .010 x .015 inch Microstrip. If you don't feel up to this, just scribe the piece to resemble the grille as well as possible.

Next the road wheels can be built up from Airfix Panther wheels. A total of eight convex and eight concave wheels are needed. These are slightly overscale for the model but not too much, so in 1:76 scale, they do not effect the final appearance much. You can, if you like, file them down to the correct size to be more accurate, but the Panther wheels are near to the same pattern as the 38's and if you reduce the diameter you may destroy the pattern of the rim and tyres. File down the 'bosses' on the convex wheels

till they are about level with the rims. Cut off the spacer from the back of the concave wheel cleanly and do not throw this part away as it will serve as one of the return rollers. Similarly cut the other seven spacers away and select the best four pieces.

Cement the concave shaped wheels to the back of the convex wheels using plenty of tube cement here, but don't overdo it or else you will ruin the parts. When all these pieces are dry, finish off the convex wheel with an outer disc of plastic sheet as shown on the plan and exploded view.

I used an Airfix JS3 sprocket modified with a plastic card disc to represent the 38's sprocket. The idler is from the same source as the sprocket, sanded down to give a thinner profile. There seems to have been a variety of sprockets and idlers fitted to the '38' chassis, and study of photographs of the real vehicle will show this. Hilary Doyle's drawings of the Hetzer and Marder SP guns in the Bellona range of tank prints will show some of the various types used.

Mount the wheels in pairs on to strips of 60 thou plastic card, and cement these assemblies to the hull sides. Similarly mount the sprocket, spaced so that its teeth slightly overlap the forward road wheel tyre. The idler is cemented into place protruding from the real hull plate with its rim just overlapping the rear roadwheel tyre. A close look at the plan will clarify this and the extra side elevation gives the wheel spacings more clearly.

Trackguards or fenders are made from 20 thou sheet, curved slightly at the front end. The supports are made from Microstrip, so make an effort to include these small parts as they break-up the otherwise bare appearance of the track guards. Make up the offside stowage bin from 10 thou sheet. If you want to represent the



Above: The Germans made wide use of the PzKpfw 38(t) in the lightning invasion of France and Flanders in May 1940 when this vehicle was pictured providing close cover for an infantry attack on a French outpost. Vehicle is dark grey and the callsign numbers are red outlined white.

real thing, perforate the pieces with a hot pin (hot, not red hot), making sure not to melt the plastic in the process. This procedure is best carried out before cutting out the parts from the sheet. Alternatively paint on this effect when you have finished construction and start painting the vehicle. The hatch on the front plate is cut from 10 thou plastic sheet with its splash guard from Microstrip well coated with solvent to bend it to shape. You will probably need a little practice to get the splash guard right but it's worth it on such a small part to take away the plain look from the glacis. It is attention to small details like this that lift your models from the 'run-of-the-mill' class. If you encounter a prominent detail it is much better to attempt to model it somehow than to dismiss it as being too difficult to bother with.

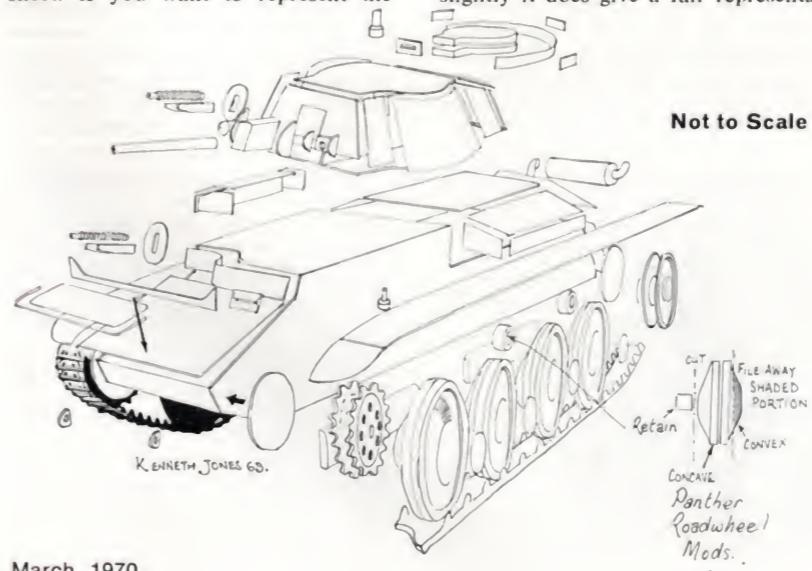
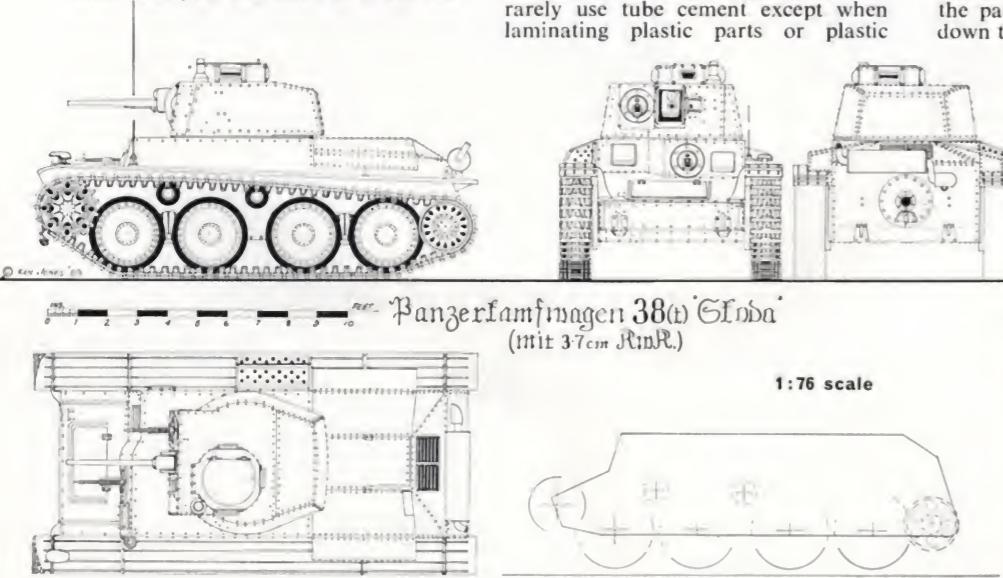
The bow machine gun—Czech Model 37 7.92 mm—is not unlike the British Besa and is mounted in a similar fashion. I used a spring cut from the Airfix 1916 Mk I tank's steering gear—cut to size and sanded round the muzzle—for this; although overscale slightly it does give a fair representa-

tion of the weapon's cooling gills. Mount this into a 20 thou thick plastic sheet disc and add the cradles from Microstrip. Cement in place the glacis vision blocks, which are easily fashioned in relief from pieces of scrap or Microstrip. Don't forget the driver's side port on the off side of the vehicle.

Make up the exhaust silencer and pipes and cement them on to the hull rear. I got my silencer from the scrap box; it started life as the pivot pin in the turret of an Airfix Sherman. I made the exhaust pipes from stretched sprue. Finally, add any other personal details like extra stowage bins, pioneer equipment, etc. Before starting work on the turret, the tracks can be cut to size. The Airfix Panther tracks would be ideal. Cut away the excess each side of the double row of teeth and cut them to the correct length using the assembled running gear as a guide. Either sew, staple or glue them together. I used Airfix Lee tracks as I had no Panther ones available at the time. Although they are still in place on the model, I'm not entirely satisfied with them.

The turret is built up in similar fashion to that of the Tetrarch, which was covered previously. You could, if you prefer, carve it from balsa or build it up from laminated pieces of 60 thou plastic sheet by the methods I've described before. The built up version is more of a challenge to your skills though and I'd advise having a go at it if you have not tried it before.

Cut out the overall size of the base on 20 thou plastic sheet, and chamfer the outer edges inwards slightly so as to accept the side plates when you fit them later. From the side elevation on the plan cut a single former to the turret profile and cement this in place on to the base along the centre line. Next cut the two top pieces and the front plate from 20 thou sheet and cement them into place, starting with the front plate which will add support to the top pieces when they are next cemented into place. Cut the rear plate from 20 thou sheet and cement this into place after embossing any detail

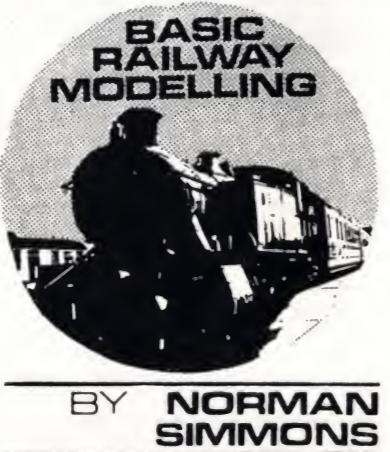


THE Southern Railway 'Schools' Class 4-4-0s were generally regarded as being some of the most handsome locomotives to run in Britain and they were universally admired. The Airfix kit of the 'Schools' is a faithful reproduction of the original and as such its popularity should be assured. Even so, there are a number of improvements and refinements that can be easily incorporated at little cost to add yet more appeal to the finished model.

Assembly of the kit as described in the instruction sheet need not be departed from to any large extent and a copy should be at hand at each stage of construction. Assuming you have a copy to hand as you read this, I will run through it stage by stage. The first stage is the Driving Wheel Assembly. Before beginning here it will help considerably to paint the wheels and the mainframes before they are assembled. I have also found that particular care is required when cementing the two wheel halves together to ensure that they are parallel to each other and that they run straight and even. The



Above: No 914 Eastbourne in original SR livery of the early 'thirties, with number carried on the tender. From the toning the smoke deflectors look green but they were normally black and the 'green' appearance here is probably due to light reflection. Foot of page: By contrast 30907 Dulwich is shown in lined green BR finish. Note the wide blastpipe chimney.



need some attention to get it to slide smoothly in between the ribs provided on the mainframes. If you have painted the mainframes it is as well to scrape the paint away from inside the ribs and to file or scrape a small flat on the top and bottom of the pin on the rear of the crosshead. Check the movement of the cross head thoroughly before cementing the cylinders in place and when the time comes to cement the cylinders, be very sparing with the cement, especially at the bottom of the cylinder, as it is very easy for the cement to work its way on to the piston rod and seize it up.

It is much easier to make an assembly of the eccentric crank (part 8), the eccentric rod (part 9) and the expan-

finished model to fit wire handrails in place of the dummy plastic ones. The latter can easily be removed with a sharp craft knife and an ordinary wood chisel. A second craft knife which perhaps has lost its keenness of edge and is relegated to secondary duties can be used with a scraping action to help smooth the plastic after the bulk has been removed. I find the ordinary type of handrail split pins as sold by most model railway stockists quite satisfactory although I know a number of people prefer the special handrail knobs as being nearer to scale. The special ones are understandably expensive considering the fineness and precision of their construction. The split pins are very much cheaper and they do have one very important feature in that they are easily and firmly fixed in place especially if the boiler is afterwards filled with putty or a Polyfilla mixture. The holes for the split pins are best drilled before the plastic handrails are removed as these give a guide for drilling the holes. For the split pins I use a No 71 drill held and simply twisted by hand in an Eclipse pin-chuck.

Before assembly of the boiler it is as well to consider the chimney. The type fitted to the Airfix model is a beautiful representation of the wide diameter chimney with multiple jet blastpipe which O. V. Bulleid introduced to the class starting in 1938. Several experiments were tried out before the final design was evolved and this was fitted to 20 locomotives in all, leaving the remaining half of the Class with the original Maunsell design chimney. Inexplicably the Maunsell chimney is shown on the Airfix kit box lid and on the colour scheme drawings in the instruction sheet, but,

Below: A beautiful SR scene in 1947 which could be re-created perfectly in model form. 'Schools' No 927 Clifton meets an as yet un-named 'West Country' class Pacific heading the 'Golden Arrow'. Clifton is in Malachite Green and portrays an example of green, lined, smoke deflectors. Both locomotives are impeccably clean.



Above: The Airfix model finished as 937 Epsom in the early SR livery. Dryprint transfers and lining are from the Kings Print SR sheet. Note the Maunsell chimney fitted in place.

it should be noted, that Harrow, the subject of the drawings, was one of the locomotives fitted with the wide Bulleid chimney. Because I wanted to finish my model in the early style Southern livery—more about that later—I decided to fit a Maunsell chimney which I obtained from Eames of Reading. After the boiler halves were assembled the hole left by the removal of the wide chimney was filled in with Isopon and the new Maunsell chimney was glued in place using Britfix Epoxy Adhesive. The centre line of the chimney should be 11 mm from the front edge of the smokebox. Another improvement which can be done at this stage is to reduce the height of the safety valves to give them an accurate overall height above the boiler of 4 mm. The boiler assembly is best painted and lined at this stage. It is certainly very much easier tackling the job now than waiting until the model is completed.

Nameplates are next mentioned in the Instruction Sheet. Of course, it helps the finished appearance to fit an engraved brass nameplate as supplied by a number of specialist model railway manufacturers. The transfers supplied in the Airfix kit are but a poor substitute and, when one considers the fineness of detail that can be accomplished in moulded plastic, it is difficult to understand why it was necessary to resort to transfers for this detail. I have compiled a combined list of

nameplates culled from the lists of Eames, Hobbytime and Kings Cross, the initials E, H or K respectively indicating the source. I have also indicated with an asterisk which locomotives were fitted with the wide chimney:

No	Name	Supplier
900	* Eton	E
901	* Winchester	E, K
903	Charterhouse	H
905	Tonbridge	E
907	* Dulwich	E
910	Merchant Taylors	E
911	* Dover	K
915	Brighton	E
916	* Whitgift	H
919	Harrow	K
920	* Rugby	E
921	* Shrewsbury	E
924	Haileybury	E
926	* Repton	E
927	* Clifton	E, K
929	* Malvern	E, H
934	* St. Lawrence	E
937	* Epsom	E
938	* St. Olave's	E
939	* Leatherhead	E

No 926 Repton is distinguished as being one of three 'Schools' Class locomotives preserved, the other two, 925 Cheltenham and 928 Stowe, unfortunately are not represented on any nameplate manufacturers' list so far as I know. 926 is also in an honoured position since it was shipped to the USA for preservation, which is surely an indication of the universal appeal of these locomotives.

I was asked recently how to fit engraved brass nameplates to plastic models. The brass nameplate has first to be carefully cut, filed and emery-papered to shape. It can then be simply glued into place using Britfix Epoxy Adhesive. The nameplate of Evening Star, Biggin Hill or the B1 described recently or the numberplates of GWR locomotives are simply glued to the smoke deflector, boiler casing, smokebox side or cab side as may be appropriate. They should be left overnight in a warm room to enable the epoxy resin to set thoroughly. Any stray adhesive can be cut and scraped away when dry the next morning. With locomotives such as City of

# Detailing the 'Schools'

## MODIFICATIONS FOR THE AIRFIX KIT

joins of the interlocking axle halves need particular attention since a stray piece of flash at these points can give a kink to the axle which can result in the wheels wobbling. It is as well to devote a lot of attention to these parts and after the wheel halves have been assembled to your satisfaction it is desirable to leave them alone for several hours, overnight for example, to ensure that the joins dry thoroughly.



The cylinders can be improved by wrapping a 9 mm strip of 10 thou plastic card around the outside between each of the two raised lining strips. There is no necessity for these ridges and to remove them reduces the cylinder size too much, so by adding the wrapping pieces the ridges are obscured and useful extra depth and body is added to the cylinders themselves. The cross head (part 4) will

The second main stage, Body and Bogie Assembly calls for some comment. First of all the boiler halves. It does so improve the look of the



## 'Schools' Class — continued

*Truro* or the 'Schools' Class, which have nameplates fitted above the splasher, I first glue the brass nameplate to the plastic nameplate, allow the glue to set thoroughly and clean up with a file, then cement the plastic nameplate in place on the splasher using polystyrene cement. To improve the appearance I taper down the edges of the plastic nameplate where otherwise they would be seen.

The cab as supplied with the Airfix kit is the type fitted to the second and third series of engines, Nos 910-39, and differs from the first series, 900-9, in having the side windows and look-out apertures raised in height. Both the cab and tender sides are vastly improved by removing the hideously raised lining which more than anything can spoil the appearance of a finished model. I find the wood chisel an ideal tool for this removal job and as the chisel slides along the surface the lining comes off in a neat spiral roll. I am sure there could be a use for this as a dummy spring for instance! A scrape with a craft knife and a rub over with fine sandpaper soon obliterates all trace of this unwanted detail. Whilst on the subject of lining, the boiler bands can also be reduced in height by a gentle scrape with a craft knife blade.

The tender calls for little comment excepting for the wheels. Spoked wheels are supplied in the kit and these were only fitted to the first ten locomotives. Since we have already established that the Airfix cab is only appropriate to engines 910-39, the wheels should be converted to the disc type. Fortunately this is easily remedied by filling in the spokes with a filling compound such as Isopon or plastic putty. Fortunately the conversion is much easier to do this way than it would be the other way round! One of the class, 932 *Blundells*, was fitted with raised sides to the top of the tender in a style similar to the 'Lord Nelsons'. This would be an easy and attractive modification to make but unfortunately no one, so far as I know, manufactures a nameplate for this engine. The tender was, however, transferred to 30905 *Tonbridge* about the time when inroads were being made into the class due to withdrawals and scrappings. At least one engine was fitted with an 8-wheel 'Lord Nelson' tender at the same time.

The smoke deflector plates as sup-

plied in the kit can be vastly improved by tapering the visible edges to make them appear nearer to scale thickness when viewed end-on. This is easily done with a file and craft knife. The beading round the edges can be usefully reduced in thickness at the same time. It will be helpful to paint the back of the deflectors before cementing them in place. Smoke deflectors were first fitted to the 'Schools' in 1932, two years after the class was first introduced in March 1930. It follows, therefore, that the majority of the class were fitted with smoke deflectors when new since building continued until August 1935. A number of photographs appear in the railway press from time to time showing the first ten locomotives running without deflectors and very handsome they look too. Remember, if you decide to model one of the first ten locomotives running without deflectors to build up the outer tips of the outside steam pipes. In the kit this detail is moulded on to the base of the deflector plates from where it could be cut out to provide the material required.

Finally, we come to the subject of colour scheme or livery and here I must part company with the Airfix instruction sheet. Neither the British Railways or the Southern Railway version as described is correct and slavish copying of these instructions has resulted in some of the hideously finished models that I have seen from time to time.

To take the BR version first, immediately after nationalisation the 'Schools' were painted in the standard BR lined black mixed traffic livery. Lining was carried along the footplate edge, on the cab and on the tender sides. The lining is best represented with the aid of the appropriate Kings Print dryprint transfer sheet which can be obtained from most model railway stockists. Black should not be matt black but a semi-matt finish such as provided by the Humbrol Authentic Railway Colour black. In the late nineteen-fifties the 'Schools' were uplifted to their rightful place as express passenger locomotives and painted in the standard BR lined green express passenger livery. Once again Kings Print produce the appropriate lining which should be applied to boiler bands, cabsides and tender and the green should be Humbrol Authentic Railway Colour No 104.

For Southern Railway livery, I recommend investing in the Humbrol Authentic Railway Colour Kit No 34

which contains all the colours one requires except red for the buffer beams and nameplate backgrounds. The subject of Southern Railway colour schemes could fill an issue of the AIRFIX magazine but to cut the story to size, there are two basic types; the original dark green now represented by the long awaited Humbrol Authentic Railway Colour No HR 140 and the light Malachite Green which was introduced by Bulleid from 1938 onwards. Both types are included in the new Humbrol SR Colour Kit. The lining was black and white until the Malachite Green era when it was changed to black and yellow. Lining was generously applied, taking in such features as steps, splashes, front as well as the sides of the cab and, of course, the boiler bands. At one time in the Malachite Green era the smoke deflector plates were painted green above the footplate and were lined out but at all other times they were plain black without lining. Lining is a tricky job to tackle and is best avoided, at least from the more confined spaces, if you are in any doubt about your ability.

For the SR livery the numberplate on the smokebox door must, of course, be removed and the number painted in yellow on the buffer beam. In the dark green era the locomotive number was carried in large numbers on the tender and a small oval brass numberplate was carried on the cab sides. After the introduction of Malachite Green the numberplates were removed and the numbers were painted on the cab sides only. I recommend the Kings Print Southern Railway dryprint transfer sheet in place of the Airfix transfers. Finally, I would like to mention the new Humbrol Authentic Railway Colour No HR 217 'Steel' which I used for the first time on this model and now thoroughly approve. A tin is included in the SR Colour Set. It makes a much better job of the plastic valve gear, motion and other bright metal parts than the much used silver.

One final point. What a pity this kit is moulded in green plastic. The green is the wrong colour whatever livery one is following and it would have been much more practical to have the kit in black plastic which would have avoided the necessity to paint such things as the mainframes, backs of wheels, axles, tyres and other working parts which do not take kindly to a coat of paint.



Left: This Gordon I is shown during service in No 35 Squadron which was from September 1935 to October 1937. It was then used for armament instruction until scrapped in March 1939. Markings are identical to K1776 drawn on page 325.



## Part 12: Fairey Day Bombers

WITH the lines of a fighter, an American engine and a speed of over 150 mph that outstripped the fighters of its time, the Fox was favoured with a production order at a time of financial stringency. It followed the Fairey Aviation Company's Fawn (November 1969 AIRFIX magazine) and was in turn followed by the Fairey IIIF and Gordon day bombers that saw service up to the outbreak of war in 1939.

As day flying aircraft, all three types were subject to the reversal of colours of the rudder stripes on RAF aircraft during October 1930 as detailed in the previous instalment on the Sidestrand and Overstrand twin-engined day bombers. The following deletion of rudder striping in August 1934 affected only the IIIF and Gordon since the Fox was declared obsolete for RAF purposes in March 1933.

The Fairey IIIF was not discarded until 1940 and it was as late in the war as mid-1944 before the final Gordon was withdrawn but these were not bomber versions. As a bomber, the Gordon was replaced in late 1937.

### Fox

Like the twin-engined day-bombers, the Foxes were one-squadron aircraft, No 12, on which they left their mark for a fox insignia was then adopted as a squadron badge—and remains so today for their Buccaneer S2s now bear foxhead insignia. They were a proud squadron. As one enthusiastic ex-member wrote, 'Other squadrons, fighter and bomber alike, were apt to be regarded with disdain; our Foxes could outshine them all in all senses of the word. Our engine cowls and all bright parts had to glisten, and woe betide a fitter whose copper water pipes beneath the cowlings did not shine to a flight sergeant's satisfaction. I suppose we were dubbed "Shiny Twelve" with some justification'.

The fuselage and wings were fabric covered, protected by aluminium pigmented dope giving the aircraft a silvery appearance. The top decking of the fuselage in contrast, and possibly due to the glare produced by its shiny appearance, was painted a matt dark green.

Several of the Foxes had short lives. On one of the first formation practises by No 12 squadron, on July 29, 1926, two of their Foxes, J7942 and J7944, collided. Fortunately both pilots, jumping from 1,000 feet, landed safely by parachute. J7949 was next to crash through a throttle control

becoming disconnected as it was about to land; it had to go back to Fairey's for re-building. Then J7951 crashed in a forced landing at Aston Rowant, Oxfordshire, in September 1927. So far, no crash had been fatal, and the crew of J7954, too, had a lucky escape when it caught fire at 2,000 feet on August 16, 1928, and was landed in standing crops only a second or two before the main fuel tank exploded. Unfortunately, the next accident was fatal; this was on October 11, 1928, when the tail came off J7946 after diving in a salute to His Highness The Sultan of Oman over Hendon.

A Curtiss D12 Felix engine from America in a British aircraft was a challenge to Rolls-Royce who designed their 'F' series which developed into the Kestrel. Three aircraft re-engined with the new Rolls-Royce joined the squadron from January 1929 as Mk IAs. Fairey Works numbers which appeared by the side of the serial numbers on the fuselage were as follows:

Service Serials	Fairey Nos	Conversions
J7941-7958	F847-864	J7945, J7947-7949 to Mk IA
J8423-8427	F875-879	J8424 became G-ACXX
J9025-9028	F952-955	J9026-9027 Mk IA
J9515	?	
J9834	F1138	Mk IIM all-metal. Became G-ABFG

In squadron service the Foxes initially bore the number 12 in a circumscribed circle on the fin, replaced later by the fox head insignia shown. During its last two years of service the squadron number was marked boldly on the fuselage side in the appropriate flight colour, 'A' Flight red, 'B' Flight yellow and 'C' Flight green.

A surprising innovation in July 1929, during exercises with the Sisks of No 17 Squadron, was the doping of the upper-surfaces with Nivo (dark green). At this time the squadron had nine operational aircraft, six Mk Is (Curtiss-engined) and three Mk IAs (Rolls-Royce-engined). This was deemed so efficient a camouflage that it was discontinued for flight safety reasons, lest it led to collisions.

Two ex-RAF Foxes, J7950 and J8424, as G-ACXO and G-ACXX, were entered in the 1934 England-Australia Air Race, the former arriving to become later VH-UTR in New Guinea, and the latter crashing and burning out en route. A Fox III 3-seat day bomber was built (F1842) which bore the civil registration G-ABYY before being sent as a demonstration aircraft to China.

### Fairey IIIF

The Fairey IIIF was produced as a spotter/reconnaissance aircraft of the Fleet Air Arm and as a general purpose aircraft for the Royal Air Force. As such these aircraft in general are not appropriate to this series, except for those allocated to Nos 35 and 207 Squadrons where they functioned in a day bomber role from Bircham Newton 1929-1932.

Fairey IIIFs allotted to the bomber squadrons were of the Mk I or Mk IV (General Purpose) type. In No 35 Squadron they replaced the DH 9As in the three flights, four in each. 'A' and 'B' Flights received theirs in November 1929 and 'C'

Continued on next page

## Bombing Colours — continued

Flight the following January. Individual IIIFs serving in the squadron during 1929-1932 were J9167, J9171, J9784, J9785, J9787, J9788, J9791, J9797, J9798, J9799, J9800, J9820, J9821, J9822. They bore the squadron number on the fuselage side in the standard flight colours as given for the Foxes of No 12 Squadron.

In No 207 Squadron, the unit number was similarly borne on the fuselage side in flight colours, but additionally the flight letter and the number of the aircraft in the flight was carried on the fin in the manner illustrated. Examples are 'A1' J9136, 'A2' S1202, 'A3' S1182, 'B1' S1205, 'B4' S1179, 'C1' J9638 and 'C2' S1203. On some aircraft the squadron crest was displayed, two inches high, above and between the letter and number on the fin.

## Fairey Gordon

Like the IIIF, the Gordon was basically a general purpose aircraft and many of the service Gordons were Fairey IIIF airframes re-engined with Armstrong Siddeley Panther radial engines. Since Gordons replaced the IIIFs in the bombing role squadrons, Nos 35 and 207, they are appropriate to this series.

Gordons re-equipped No 35 Squadron in July 1932. They were lucky in that their initial equipment was relatively new. Only K1163, K1762, K1776, K1778 had been IIIFs and these had only been stored before conversion, and K2683-2690 were newly-built as Gordons. Each of their twelve aircraft had a small disc on each side of the nose, as illustrated, marked in the manner:

'A' Flight: Nos 1 to 4 in white within a red disc

'B' Flight: Nos 1 to 4 in black on a yellow disc

'C' Flight: Nos 1 to 4 in black on a green disc.

In No 207 Squadron the former flight letter/number system prevailed, examples were: 'A4' K2691, 'B2' K1167, 'C1' K1757. One Gordon, J9651, had gone to No 207 Squadron in December 1929 as a IIIF to replace J9058; in 1932 it was converted to a Gordon and placed in store until withdrawn in August 1935 to go back to No 207 Squadron in its



Fox IA with Rolls-Royce engine. This aircraft served in No 12 Squadron. Compare with Fox IA drawn opposite.

new configuration. It was sold in April 1939 for service in the then Royal Egyptian Air Force.

Both squadrons, Nos 35 and 207, were sent to the Sudan in late 1935 during the Abyssinian crisis and returned to the UK in 1936. Many of their aircraft were left in the Middle East and No 207 Squadron was particularly unfortunate in having to take over a number of Gordons which had been shipped back to the UK after several years of service with No 47 Squadron in the Sudan.

One other squadron had Gordons in a purely bombing role—No 40 Squadron which formed with the type on April 1, 1931, and was thus the first Gordon squadron.

Individual Gordons serving in No 40 Squadron were K1736, K1740, K1741, K1743, K1748, K2700, K2701, K2758. These bore the squadron number in the appropriate flight colours and the unit crest on the fin.

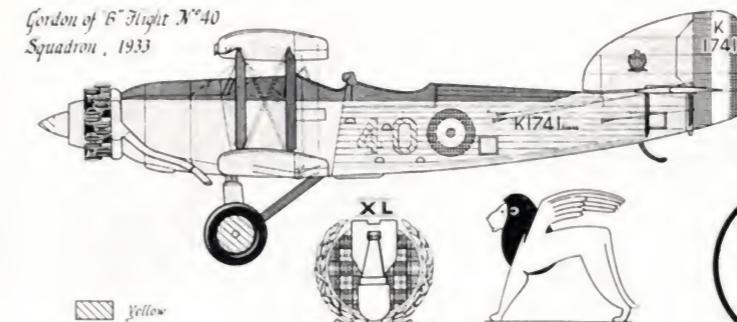
In order that the Fairey works number, visibly marked by the side of the serial, can be ascertained for the service serial numbers quoted, a table of serial and corresponding works numbers is given as follows:

Service Nos	Fairey Nos	Original Type
S1168-1207	F892-931	IIIF Mk I
J9053-9077	F973-F997	IIIF Mk IVM
J9132-9174	F998-1040	IIIF Mk IV (GP)
J9637-9681	F1139-F1183	IIIF Mk IV (GP)
J9784-9831	F1184-1231	IIIF Mk IV (GP)
K1158-1170	F1302-1314	IIIF Mk IV (GP)
K1729-1748	F1428-1447	Gordon I
K1749-1778	F1448-1477	III Mk IVB
K2683-2769	F1755-1841	Gordon I
K3986-4009	F1941-1964	Gordon II

NB—Many IIIFs in J series subsequently converted to Gordon.

Bruce Robertson

The Gordon II had revised control surfaces. Most were delivered to store for use as a reserve, as in this typical example bereft of squadron markings.



Fox IA of 'C' Flight No 40 Squadron, 1933

X 40 Sqdn fin badge

XII 207 Sqdn fin badge

Enlargement of No 12 Sqdn badge as displayed on Jarrow boxes



Fox I of 'C' Flight No 12 Squadron, mid 1930

J7948

J794

# Make a Signal

## CODES AND OTHER FLAGS FOR BRITISH WARSHIP MODELS EXPLAINED BY PETER HODGES

A NICE authentic touch can be made to any Airfix (or other) plastic warship model by the addition of a signal hoist at the foremast yardarm, for although flag signalling has been largely superseded by more modern methods, it is still used by warships when entering harbour, and may be used by them at sea to communicate with merchant vessels. It was, of course, used quite extensively in the second world war.

Signal procedures are extremely complex and obviously cannot be dealt with in detail, but the following paragraphs should give a broad outline of the principles. An additional complication arises through the not infrequent revisions of the various codes, but by restricting the scope of this article to the period from 1939 to the present day, the text has been simplified. Basically three codes are dealt with; the Naval Code up to 1948; the revised Naval Code; and the International Code, 1934. Typical hoists from each are given, as well as representations of most of the flags, and the material given should be sufficient for warship modelling.

### International Code of Signals

This is a means of communication between ships of all nations, using a series of flags representing the letters of the alphabet and pendants representing numbers, in conjunction with a universal multi-lingual Code Book. In addition, there are 'substitute' flags which may be used when one letter is needed twice in a hoist of flags.

For example, if the letters NNE were required, they could be signalled by hoisting flag N above the First Substitute and flag E. The use of the 'First Sub' signifies that the first—ie, uppermost—flag of the hoist is repeated. If on the other hand, the letters NEE were required the group could be shown by flag N, flag E and then the Second Substitute.

Ships often have a duplicate set of signal flags, so it is possible for them to indicate a letter twice by flying two identical flags, and this is of course, a somewhat clearer way of signalling. Nevertheless, the 'substitute' method is equally correct. Associated with the flag outfit is the Code Pendant, whose function is described below.

### The Naval Codes

Prior to 1948, the Royal Navy used sets of flags for communication which can be broadly divided into four groups as follows:

- (1) 26 rectangular flags and triangular pendants for the alphabet together with 10 numeral flags from I to 9, and a zero flag.
- (2) A series of numbered pendants of elongated shape, with a square tip at the fly, representing numbers I to 9 and zero, as well as similarly shaped extra pendants for special purposes.
- (3) A series of special flags, burgeses and triangular pendants, different from those above.
- (4) The full outfit of International Code flags and pendants.

Certain flags and pendants of the Naval Code were allocated as 'substitutes', and these were employed in the same way as the substitutes of the International Code already described.

This wide range of flags made signal procedure very complicated and the situation was not eased by the fact that the Naval Code flags in some cases corresponded in design with those of the International outfit, but represented different letters! Inspection of the accompanying drawings will show these confusions.

Accordingly, in 1948, a major revision of the Naval Code took place, when it was decided to adopt the alphabetical flags of the International Code, together with its associated pendants. At the same time a new set of numeral flags was introduced, and the use of

Next article by  
Peter Hodges will  
feature HMS Blake.



Above: All warship models can be enhanced by the addition of appropriate flag hoists; here Peter Hodges' model of HMS Rocket flies her pendant number H-9-2 (pre-1948 Naval Code) as she would when approaching an anchorage or mooring. Note also the ensign aft.

a large number of the special flags, pendants and burgeses was discontinued. To increase flexibility, a new 'Fourth Substitute' was added to the existing three substitutes of the International Code.

The Naval Code is, of course, restricted to Naval use, and can only be used by holders of the Naval Code Book, which is a confidential service publication. On the other hand, the International Code of Signals is for universal use and may be purchased from HMSO by anyone.

Like its Naval counterpart, the International Code Book is revised from time to time, and a sweeping revision came into force on April 1, 1969. This revision did not, however, alter the design of the flags, but merely simplified their use.

### Pendant Numbers

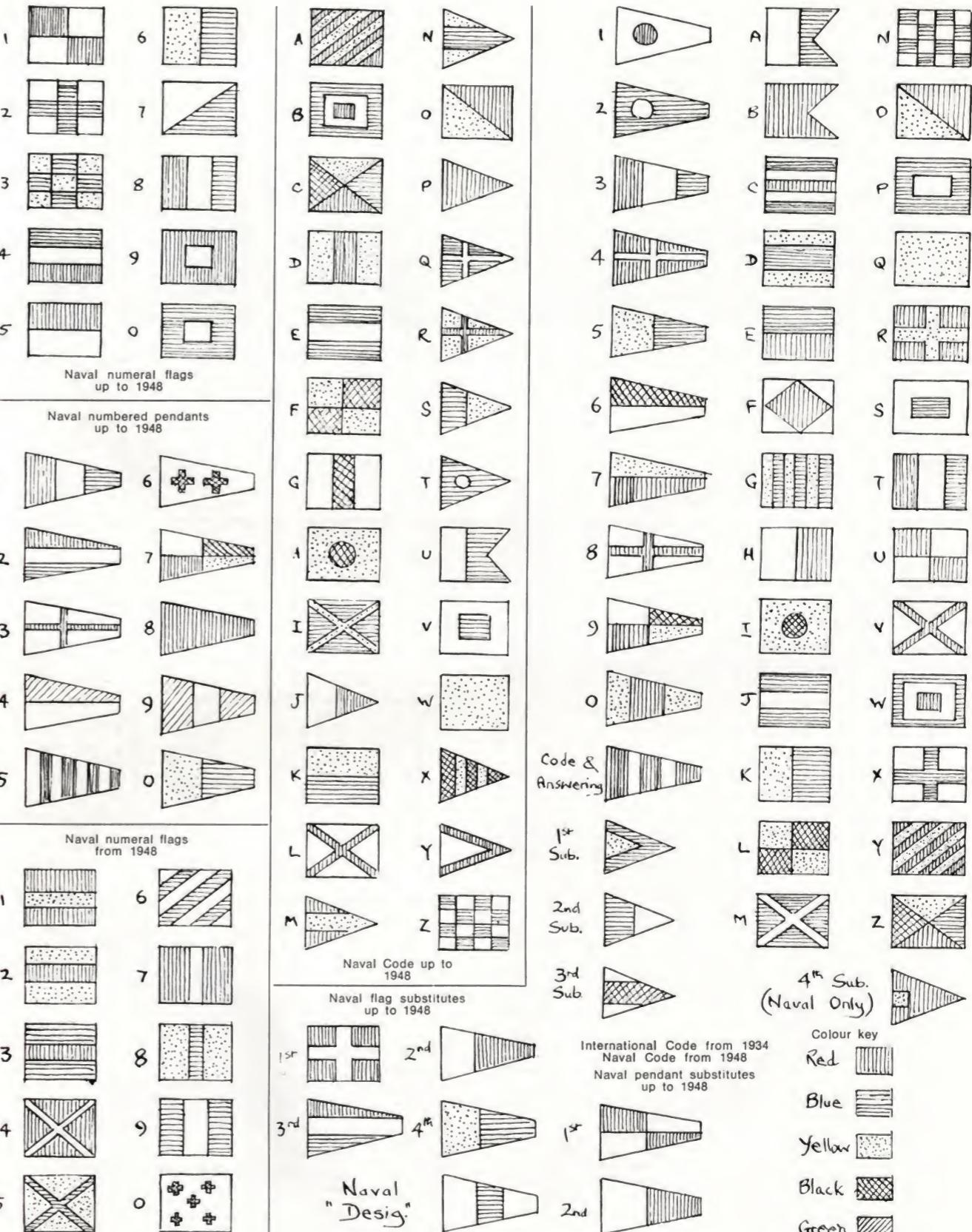
All British warships are allocated a Pendant Number which is displayed on the ship's side in (generally) black letters and numbers. During the war it was not usual for ships larger than destroyers to be so marked, although their pendant numbers still existed, of course. If black digits conflicted unfavourably with a wartime camouflage scheme, they were painted in a colour which contrasted better, and occasionally, the digits were particoloured where they traversed a camouflage colour boundary.

During the second world war, almost every letter of the alphabet was used to distinguish a particular type of warship, and we need not concern ourselves here with the whole list. Sufficient to say that with the exception of some old cruisers, all European Allied warships and escort carriers, Royal Naval capital ships, aircraft carriers and cruisers, had no distinguishing flag superior to their number. Destroyers, on the other hand, used D, F, G, H, I, L and R, although not all these letters were in use at the same time. In 1948-49 this, like the Naval Code, was rationalised, and all destroyers were regrouped under D flag superior, for the most part retaining their original pendant numbers. Details can be obtained from Jane's Fighting Ships of the period, but a better bet is the Ian Allan Warships of World War II series, which gives the complete wartime list, including the pendant numbers of ships which were lost or otherwise left RN service.

Up to the 1948 revision of the Naval Code, warships hoisted their pendant number when entering or leaving harbour. To do so, they used the appropriate letter followed by their number using the 'numbered pendants'—hence the expression—as distinct from the Numeral Flags. This was the ship's 'visual call sign', and was a means of identification, particularly for those large ships whose pendant number was not displayed on the ship's side. The illustrations on the boxes of the Airfix *Hotspur* and *Cossack* kits are correct in this respect. The practice of hoisting the pendant number lapsed when the use of the numbered pendants was abandoned.

### Signal Letters

Almost all ocean going merchant vessels have an international call sign designated to them in the form of a four letter group, and the complete allocation is given in another Stationery Office Publication. This enables ships to identify themselves by a flag hoist, a practice which was very common between passing sailing ships in the later days of sail before the advent of radio. *Continued on page 328*



## Make a Signal—continued

The nationality of the vessel can be recognised by the initial letters of the group—rather like aircraft registration letters—and nowadays warships are included in the allocation. British warships usually hoist their signal letters when entering a foreign port, but seldom do so in Home Waters. All British ships have a group beginning with either G or M, and the call sign is used for radio as well as visual signalling.

### Use of the International Code by Warships

As has already been said, the Naval Code now uses the same alphabetical flags as does the International Code, so it is obviously necessary for a warship (which may use either) to distinguish between the two. This is done by hoisting the 'Code Pendant' superior—that is, uppermost in the hoist—signifying that the message beneath is from the International Code.

A classic case occurred during World War 2, when the battleship HMS *Queen Elizabeth* passed the liner RMS *Queen Elizabeth*. The warship hoisted 'SNAP'! Further examples are given below.

### Warships under way in Naval Ports

Nowadays, ships of the Royal Navy normally make two hoists when entering a Naval port—Plymouth or Portsmouth, for example. On one yardarm is a hoist meaning, in effect, 'I have right of way over other vessels'; and on the other yardarm, a hoist which indicates the berth to which the ship is going. Because the former signal is addressed to all shipping, it is headed by the 'Code Pendant', and is thus International Code. On the other hand the berth number is of only Naval interest, and the Naval Code is used.

The special 'Right of way' hoist has undergone several revisions over the years—the latest being quite recent. It is hoisted whenever a warship is under way in a Naval port, whereas the berth signal is only flown when the ship is entering. Variants to cover the period of the Airfix range of warships are included in the drawings.

The Naval Code has a pendant known as the 'Designation Pendant' which corresponds in some ways to the International 'Code Pendant'. It signifies that flags beneath it are to be read as individual letters rather than a Naval Code group. The berth is, therefore, indicated by 'Desig' above the initial letters of the berth—3 W for No 3 Wharf, for example. Without the 'Desig' pendant, flag 3 above flag W might have some cryptic meaning.

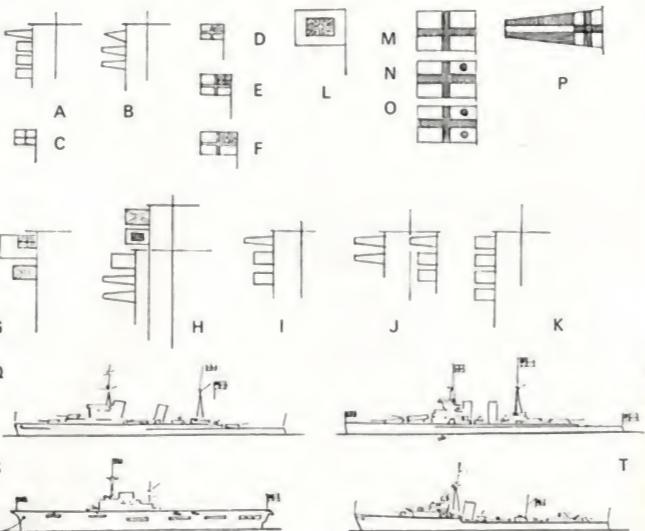
### Other Naval Flags

Most public libraries have (or can obtain) publications on signalling in their Reference section and the *Manual of Seamanship Vol I* of the appropriate period shows all the flags mentioned above. For those who make waterline models, not a bad plan is to train all the guns (and directors) on to the same bearing as though engaging a target, and give the ship an extra large flag B at the yardarm, which signifies a vessel carrying out gunnery practices.

### Ensigns, Jacks and Flag Officers' Flags

All British warships in commission fly a White Ensign during the hours of daylight in harbour, and at all times at sea. A largish version is hoisted from the ensign staff right aft at either 0800 or 0900 in harbour and is struck at sunset. At sea, a smaller edition is flown from the mainmast gaff under normal circumstances, but during action and on ceremonial occasions, three are usually flown at the same time—one at the fore top mast head, and one at the gaff, and a third at the Ensign staff.

The Union Flag (only properly the Union Jack when it is flown from the Jackstaff in harbour) is also both the personal flag of an Admiral of the Fleet, and the Court Martial flag, so it is possible for a ship to fly three Union Flags at the same time. This occasionally happens in HMS *Victory*, when the Commander-in-Chief, Portsmouth holds the rank of Admiral of the Fleet, and a Court Martial is held on board. However, the likelihood of a seagoing warship being thus employed is remote. Exceptionally, the Union Flag is flown as a Jack when under way, but only when the ship is carrying or escorting the Sovereign, or is for some special reason 'Dressed overall'. This is the ultimate in flag hoists, when every flag in the locker is used, and a modeller with an above average degree of patience, might like to take on the task! *Continued on page 350*



Half-size for 1:600 scale models: (A) Typical International Hoist, 'Code Pendant' superior. (B) Typical pendant numbers. (C) Flag Officers. (D) White Ensign, destroyers at sea. (E) White Ensign, destroyers in harbour, Cruisers at sea. (F) White Ensign, Cruisers and Battleships in harbour. Battleships at sea. Ships Entering Harbour (NOT to scale); (G) Red Ensign over International 'H'. (I) Pre-war, all warships. (2) Mid 1950's warships over 4,000 tons only. (3) International 'M' over 'Pilot Jack', and pendant numbers, all warships circa 1946. (J) International 'Code Pendant' over flags 'ZV', all warships, circa 1960. (K) International 'Code Pendant' over pendant zero, and 'Naval Design' over berth letters, all warships, 1969. (L) Warship entering foreign port, 1969. ('Signal letters'—note that Code Pendant is not used in this instance.) (M) 'Pilot Jack' (Union Flag with white border) (N) Admiral. (O) Vice-Admiral. (P) Rear Admiral. (Q) Church Pendant (Flown during Church services). (R) Cruiser at sea, Admiral's flag at mainmast. (S) Battleship at sea on ceremonial occasion; Rear Admiral's flag at foremost. (T) Destroyer at sea.

Signal Letters for Post-War Airfix Models			
Name	Code	Name	Code
Victorious	G G L Q	Dainty	G K Y T
Devonshire	G H F W	Daring	G K Y K
Hampshire	G H F X	Decoy	G K Y L
Kent	G H F Y	Defender	G K Y M
London	G H F Z	Delight	G K Y N
Glamorgan	G K B H	Diamond	G K Y P
Fife	G K B U	Diana	G K Y S
Norfolk	G S M U	Duchess	G K Y T
Fearless	G K Y Q	Tiger	M M W S
Intrepid	G L X H	Blake	G L Z M
Queen Elizabeth	G B S S	Lion	M W S G
Queen Elizabeth 2	G B T T		

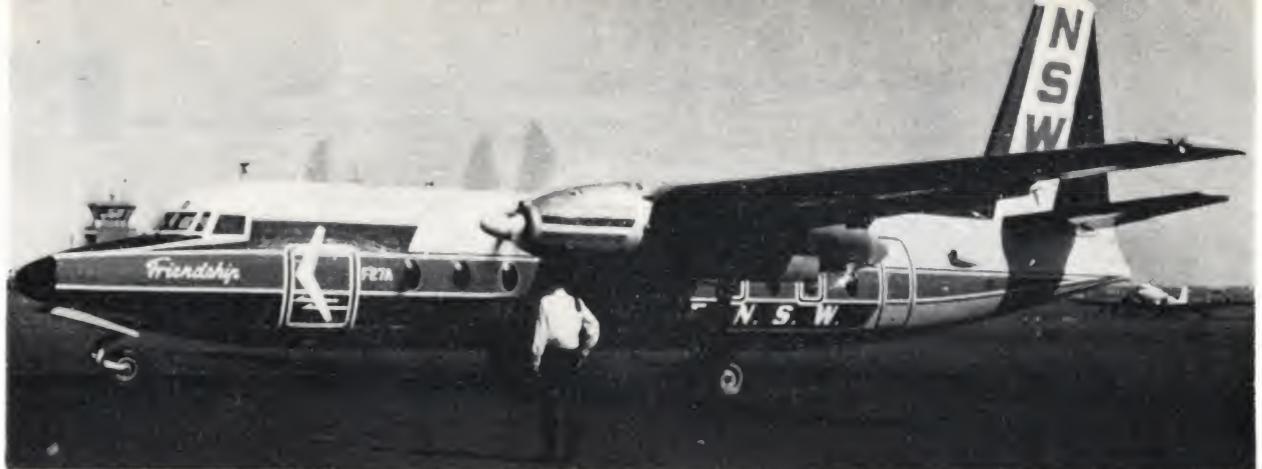
### Typical Flag Hoists for Berthing

Flags	Meaning
N W W or N W 2nd Sub	North West Wall
T B	Tidal Basin
N C	North Corner
P H J	Pitch House Jetty
2 W	No 2 Wharf

NB: These are actual examples as would be used by ships entering. All signals are flown with 'Desig' pendant superior

### Typical Signals to Merchant Vessel

Prior to 1969	
Flags	Meaning
B N	Aircraft taking off and landing: Keep clear.
H P	Submarines exercising: navigate with caution.
I B	You should keep clear of firing range.
L V E	You should use radio.
From April 1, 1969	
Flags	Meaning
Q P	I will come alongside
P B I	You should keep clear of me: I am exploding a floating mine.
A L	I have a doctor on board.
K K or	Towing is impossible under present weather conditions.
K 1st Sub	N.B.: All signals flown with 'Code pendant' superior.



# FRIENDSHIP Mk 200

Simple but attractive conversion by Dennis H. Brignell

SINCE its entry into commercial operation in November, 1958, world-wide sales of the Fokker F27 Friendship to the end of 1969, have totalled 526. Although the Mk 100, as depicted in the Airfix kit is no longer manufactured, there are now five civil variants as well as a military version available from the Dutch Fokker Company and two variants licence-built by the American Fairchild-Hiller Company.

Of the 47 Friendships on the Australian Civil Register, about half this number are Mk 200s. The subject of this conversion, VH-FND, is one of five Mk 200s operated by the Sydney-based Airlines of New South Wales. For myself, the model is intended for display as a 'companion' to the Short Sandringham VH-BRF, which was described in AIRFIX magazine of November, 1969.

The Mk 200 employs the more powerful RD47 Mk 532-7 Rolls-Royce Dart turbo-prop engines, each of 2050 shp plus 525 lbs of jet thrust at take-off. Except for the shorter square-tipped propeller blades, the engines are the same physical size as the earlier RD46s. The aircraft is 1 foot 5 inches longer than the original Mk 100 when fitted with nose radar, as on VH-FND.\* The number of oval-shaped windows fitted depends on the individual operator's require-

\*The longer nose was first introduced on aircraft No 76.



Above: Closer look beneath the wing shows the undercarriage door positions when open. Note very wide opening of nosewheel doors.

March, 1970

Above and below: Pictured at Kingsford Smith Airport, Sydney, is VH-FND, subject of Dennis Brignell's conversion and the scale drawing on the next page. Note that the starboard side lacks the 'Royal Mail' cypher and the small lettering above the door, both carried on the port side as shown in the drawing. F27A is Airlines of NSW's name for the Mk 200 series Friendship.



ments, as the Mk 200 carries either 40, 44 or 48 passengers and the utilization of the forward cargo compartment varies accordingly. As can be seen from the plan, there are 11 windows on either side on the subject aircraft.

The distinctive colour scheme depicted in this conversion will soon have somewhat historical significance, as it has been decided by the recently re-titled Ansett Airlines of Australia that their new colour scheme is also to appear on the aircraft operated by their various subsidiaries. This means that Airlines of New South Wales will all but lose their individual identity.

Photographs of VH-FND were taken during two visits to Sydney's Kingsford Smith Airport. A 1:48 scale general arrangement plan and detailed technical information for the model conversion were made available by Mr M. G. Elborne of the Sydney office of Royal Netherlands Aircraft Factories Fokker. A brief history of Airlines of New South Wales was provided by Mr Phil O'Neill, Sales Manager of the Airline.

### BRIEF HISTORY

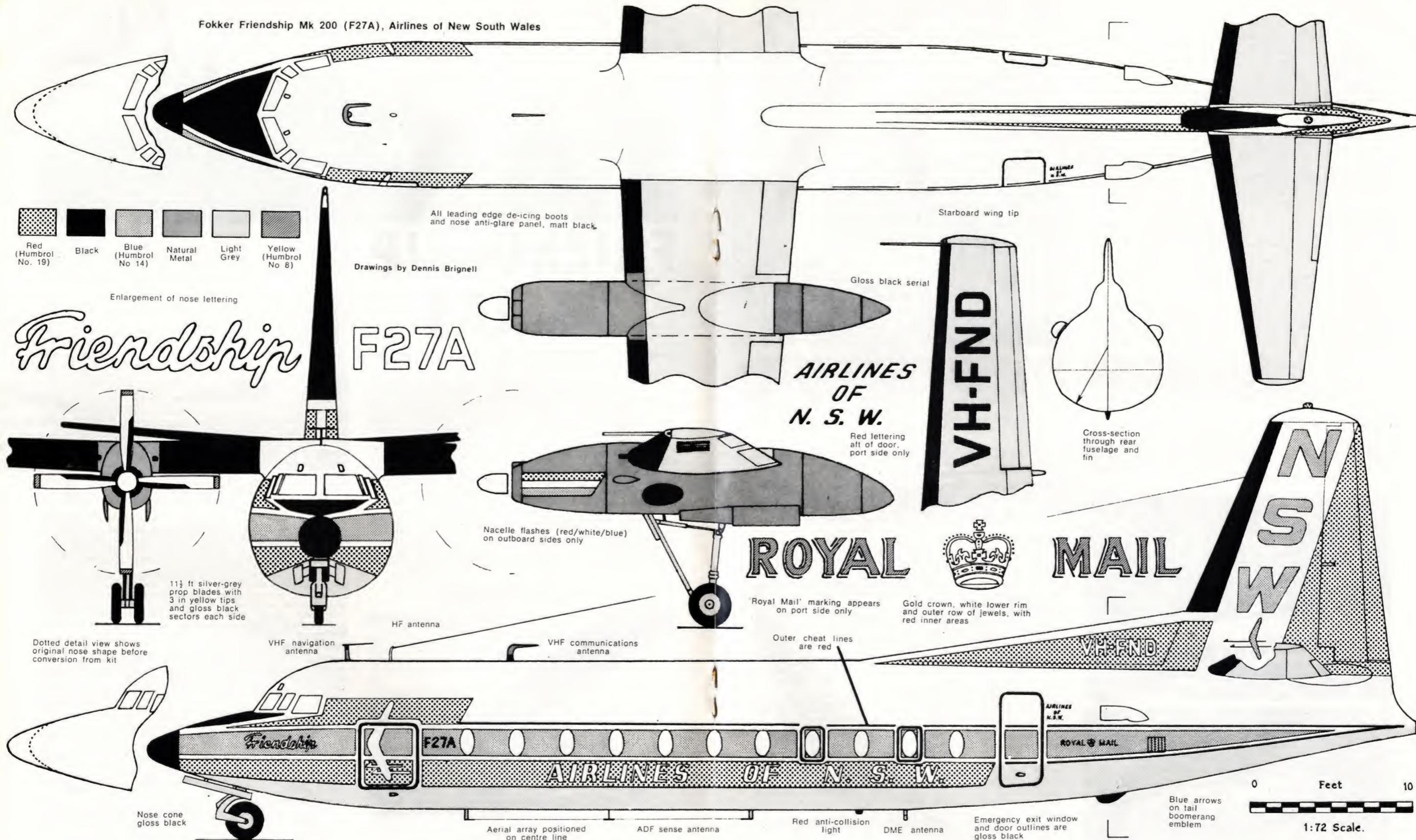
Airlines of New South Wales, then Butler Air Transport Limited, commenced operations in 1934 from the town of Cootamundra, in southern New South Wales. On moving headquarters to Sydney two years later, they continued to expand their services to country centres. The years immediately after World War 2 saw very rapid expansion of air services throughout the State, with DC-3s as the main-line aircraft. Interstate operations to Melbourne were begun in 1955, and subsequently to Adelaide via Broken Hill.

In 1958 control of the Company passed to Ansett Transport Industries Ltd. A major re-organisation of the Company's activities saw operations being restricted to mainly intra-state. The name of the Company was changed from Butler Air Transport Limited to Airlines of New South Wales Pty Limited, in 1959 and again in 1966 to simply, Airlines of New South Wales, when the Company was converted to a division of Ansett Transport Industries (Operations) Pty Limited.

Over the years the company has used such aircraft as the Dragon, Avro Anson, Heron, DC-3, DC-4, Viscount, Elizabethan and

Continued on page 332  
Scale drawings on next page

Fokker Friendship Mk 200 (F27A), Airlines of New South Wales



## Friendship 200 — continued

Convair Metropolitan. At present the fleet of 5 Friendships, 2 Sandringhams and a DC-3 is employed in serving around 46 country centres throughout the State, some of these in conjunction with aircraft of the parent Company and other subsidiaries.

### CONVERSION NOTES

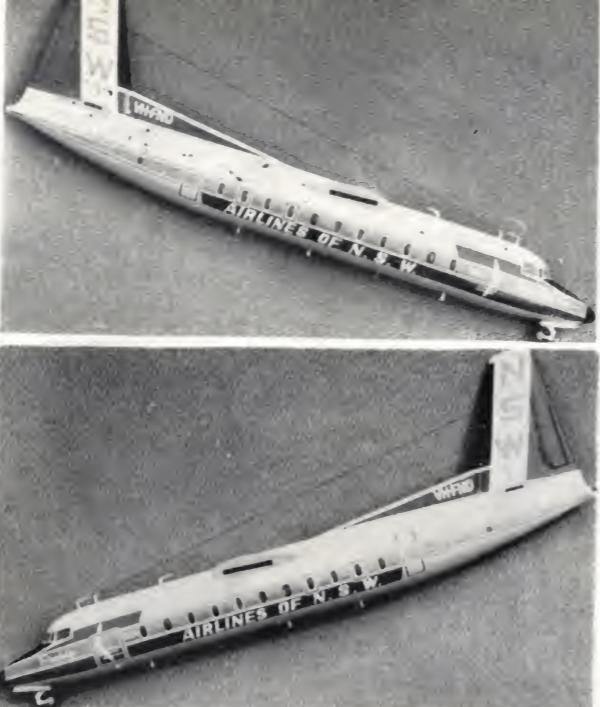
The work involved in this conversion is quite simple. It consists of little more than a longer nose, additional windows, shortened propellers and amended aerial location. The 'fun and games' comes with the painting and marking. This phase of the project could best be described as an exercise in Sellotape masking, as amply described in Chris Ellis's book *How to go Plastic Modelling*. The details of the conversion are best described by itemising the work to be done on the various parts of the model. The fuselage was completed and painted before attachment of wings and tailplanes.

**FUSELAGE** Parts 11 or 14 should be used to help mark the positions of the two additional window openings required on either side. Glue these two transparencies in their new forward position, and parts 13 and 16 in their normal place, leaving the new window transparencies to be located in the less conspicuous under-wing position. As I have not yet tackled any acetate moulding, my additional windows were cut from curved areas of the unwanted display stand arm. It was found necessary to sandpaper the insides of the fuselage halves, in the area of the window openings, so that the transparencies protruded slightly from the outer surface, as is required. The doors provided in the kit are the required size, and were cemented into place.

The air-conditioning pressurization intake on the starboard side is fashioned from sprue. It is a replica of the existing port side intake, but note that it is mounted further aft. The shallow bulges on the fuselage below the rudder, inboard of the elevators, can be made from sprue, sanded to shape. Their omission from the kit model is a small error, as they appear on all F27s. Hence they should be added even when you make the Friendship up as a normal Mk 100 straight from the box.

A teaspoon full of lead, trimmed to shape and fixed behind the cabin bulkhead was found sufficient to make the model stand on its under-carriage. After joining the fuselage halves, the aerial holes and stand slot were filled in and the landing skid built up, as per the plan. The new nose was built up and shaped with body putty. The nose wheel, after removal of the 'flash' above the tyre, was glued into place and the existing nose wheel doors positioned wide open, as shown in the plan.

**Below:** Lurking in the hangar recently at Kingsford Smith Airport is a sister aircraft, VH-FNC, showing the newly applied Ansett paint scheme which differs from the more colourful Airlines of NSW scheme which is in the process of disappearing. Symbol and tail are bright red, upper hull is white, and centre striping is black above red with white lower border. Undersides are varnished natural metal. Tail leading edge is black.



Above: Starboard and port views of the fuselage in the process of being lettered shows how the entire model depends for its authentic appearance on extreme care and patience at this stage. All fuselage painting is completed before the wings and tail are cemented in place. The wings and engines are completed and painted as similar separate assemblies, but it is, of course, essential to check that the joints fit perfectly before any painting is attempted. Then just application of cement at the joints is literally the last task before completion.

**WINGS** Wingtip pilot tubes made from sprue are the only additional parts required. The small wingtip navigation lights, outboard of the tubes, are painted in. Note that the two undersides projections on each wing are as depicted in the kit, although not shown on the plan.

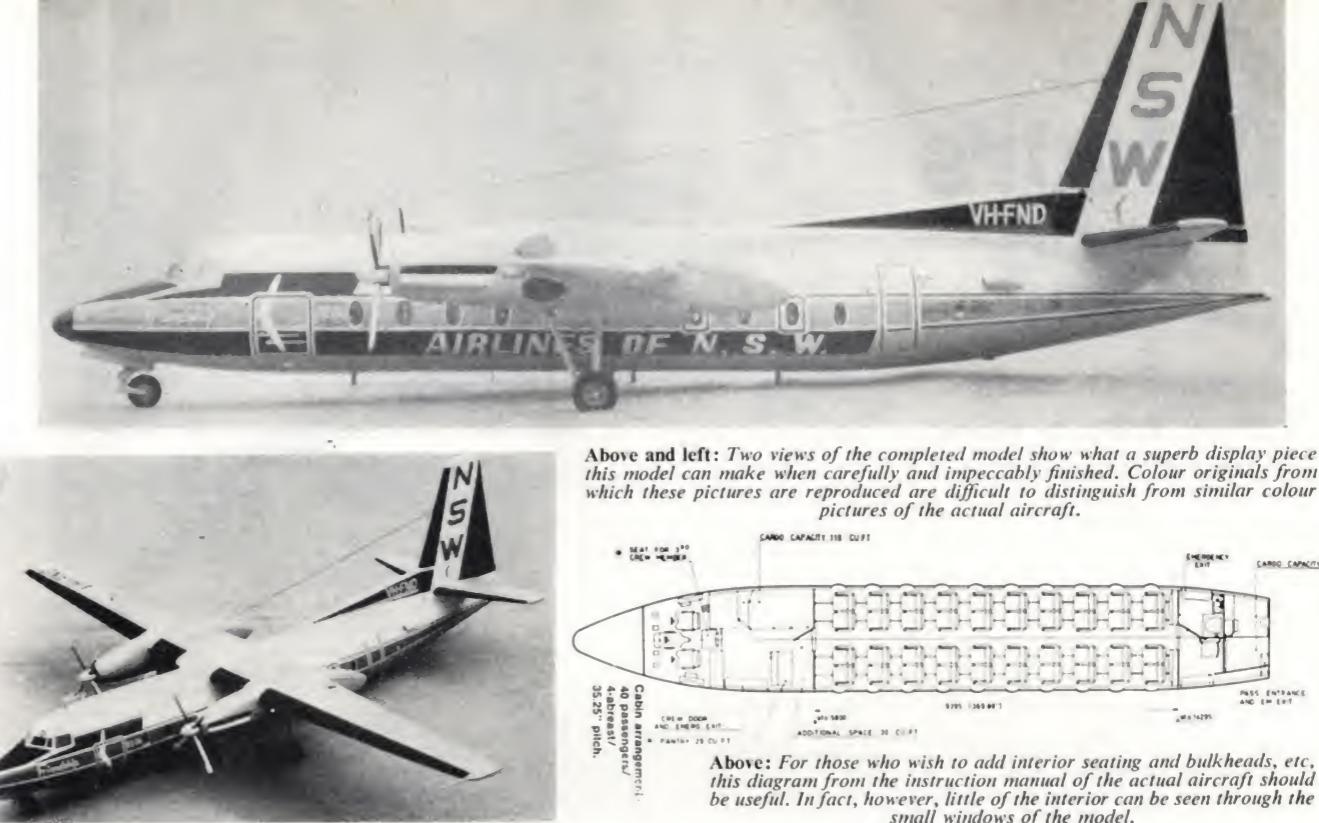
**ENGINE NACELLES** The raised 'slats' on the outboard side of each nacelle should be carefully removed as they do not appear on RDA 7 engines. The propeller blades have the tips squared off to give a diameter of just over 1.9 inches. The only alteration to the main undercarriage is to remove the four 'spokes' from the outside of each wheel, leaving only the raised axle hub in the centre.

**AERIALS** As indicated on the plan, all aerials both above and below the fuselage, are positioned on the aircraft's centre-line. The VHF Navigation Antenna (part 66) and the VHF Communications Antenna (part 67) need to be sanded down thin, before repositioning. The HF Antenna on top is shaped from sprue and the wire to the fin, from heat-stretched sprue. The ADF Sense Antenna on the underside is made up in a similar way. Behind this is a red anti-collision night and aftermost, the thin DME Antenna. The anti-collision light atop the fin is also red.

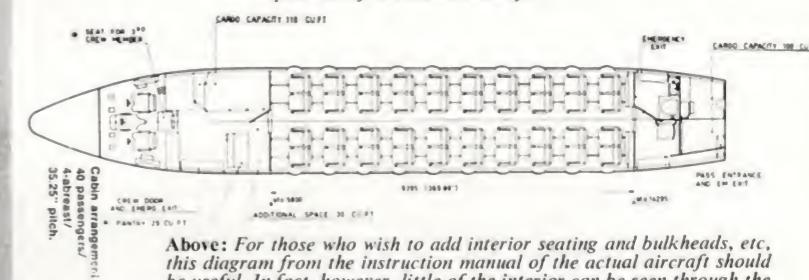
**PAINTING AND MARKINGS** As mentioned earlier, Sellotape masking solves most of the problems that arise with this somewhat complex colour scheme. The light grey used was Humbrol Granite No 40, lightened with gloss white to a shade very similar to the natural metal colour. The wing registration letters, tail markings, forward fuselage emblem and the black 'D's' over the cockpit windows were hand painted direct. All other markings were hand painted on clear transfer sheet and clear gloss varnished after application to the model. All oval windows except the second, sixth and seventh from the front on either side, have a thin white border, not shown on the plan. The emergency window and door outlines were done last.

There is a small white spot on the blue area, just forward of the word 'Friendship' on the starboard side only. This marks the location of a stall warning device. The exhaust louvres on either side, below the air intakes, are painted in black. The white 'F27A' on either side is local terminology for this Mk 200 model of the Friendship.

Let me emphasise again that the actual conversion work is the least difficult part of this model so it is most essential not to rush the actual painting and lettering which really sets off this striking and attractively coloured aircraft. Though I did most of the lettering by hand, almost everything in the way of lettering could be obtained from other available sources. For instance Bick produce a 'Modellers' sheet in yellow, styled and sized very close to the 'Royal Mail' lettering; the registrations are in common style and could be made up from the Yeoman/Hales lettering transfers suitably trimmed—or you may find other transfers or Bick in matching style; the 'NSW' lettering can be traced directly on to solid blue transfer sheet and the letters cut out individually, and the same applies to the tail boomerang emblem; 'Airlines of NSW' and the fuselage boomerang emblem can be similarly cut from white transfer sheet—a long job but quite easy; and for cheatlines you can use red Bick stripes or cut strips from red transfer sheet.



Above and left: Two views of the completed model show what a superb display piece this model can make when carefully and impeccably finished. Colour originals from which these pictures are reproduced are difficult to distinguish from similar colour pictures of the actual aircraft.



Above: For those who wish to add interior seating and bulkheads, etc., this diagram from the instruction manual of the actual aircraft should be useful. In fact, however, little of the interior can be seen through the small windows of the model.

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# Colours 1969

MICHAEL J. F. BOWYER'S  
ANNUAL REVIEW OF MILITARY  
AIRCRAFT AND MARKINGS IN  
BRITAIN



George Pennick decided he'd like a shot of the B-52 taking off. After a very long wait he was rewarded with some quick pictures, of which this is one. Note the assortment of colours in which the machine was painted. Much of the wing under side was grey.

THERE is surely no doubt about 1969's most interesting change in British military aircraft markings. It must be the rapid manner in which the new RAF trainer scheme has been introduced, firstly on the Jet Provosts and later on the Gnats. In our issue of March, 1969, we discussed these markings. In common use they have come to be largely in accord with those initially introduced. There are slight differences in the markings on the tail units of aircraft of different schools—but whenever a new scheme is introduced slight variations usually creep in.

Cranwell's Jet Provosts have retained their 'trainer bands' in the College's specially authorised colours. The 17 inch light blue band on XP583 had blue edging stripes of a darker shade 1½ inches wide. On her fin she carried a black '87' one foot high repeated on the anti-dazzle panel at the tip of the nose in white characters 8 inches high. Others based at Cranwell and similarly marked with the band encircling the fuselage, and carrying the College crest on a white disc, included XP555:70, XP556:71 and XP671:91. During the year the College fielded a team called 'The Poachers'. XR643 of this formation carried similar trim to the others but had a light blue fin and rudder outlined in dark blue, and bearing a circle in the same colours in which was DJW in blue. On its anti-dazzle panel appeared the number '78'.

Another Jet Provost aerobatic team which was active last year



Left; Close up of the tip tank lettering on a Jet Provost of the Linton Gin Team. Below; Dominie XS733 of the College of Air Warfare. Bottom; Smartly finished Jet Provost T4 XP583 '87' from the Royal Air Force College, Cranwell.



87

was the Linton Gin team. One of its machines wearing the latest colour scheme was XP634. On its tip tanks it had LINTON GIN in white the word GIN being partly outlined by a thin black line. The I in this word was 10½ inches high, other letters being smaller. On the sides of the nose the machine had '49' in 10 inch figures, repeated on the inner side of the flaps 8 inches high to afford rear recognition. The red under the tailplane extended 6 inches backwards on this aircraft.

Jet Provosts of the Red Pelicans remain red overall with lettering and numbers in roundel blue. They wear CENTRAL FLYING SCHOOL on the fuselage in 4½ inch letters. Serial number sizes vary from 3½ to 3½ inches. Both sizes were applied to XS222. The individual identity number appears on the flaps 1/3 of the way out in 6 inch blue digits. On the nose the aircraft have the CFS flash. XS222 is 42, XS225 '47'.

Jet Provosts are also used by the College of Air Warfare. They merely carry a number at the fin tip. XP688 with the new finish carried '22'. These aircraft keep company with the Dominies of the unit. XS733 is one of the latter which has been used wearing the College crest on a white disc positioned beneath the third window on the port side of the aircraft. The disc is slightly less in diameter than width of the post office red cheat line. XS733 had ROYAL AIR FORCE COLLEGE OF AIR WARFARE along the fuselage roof in small black lettering.

A trainer of another sort seen last year was the Canberra T19. WH724, a conversion from a BMk2, showed itself in dark sea grey and dark green camouflage with light aircraft grey under surfaces. The nose radome resembling that of the Canberra T11 in shape was matt black on this aircraft which had an 8 inch fuselage serial and the usual black underwing serials. On the base of the fin was painted 85 Squadron's hexagonal marking in black and white. A white C appeared above the fin stripe. Flanking the fuselage roundels were 85's black and red squadron colours, basically 8 inch squares. Externally the T19 looks like the T11, but one small recognition point concerns the ejector seat which is of a different type. WH724 was the prototype MK19 and very few have been converted.

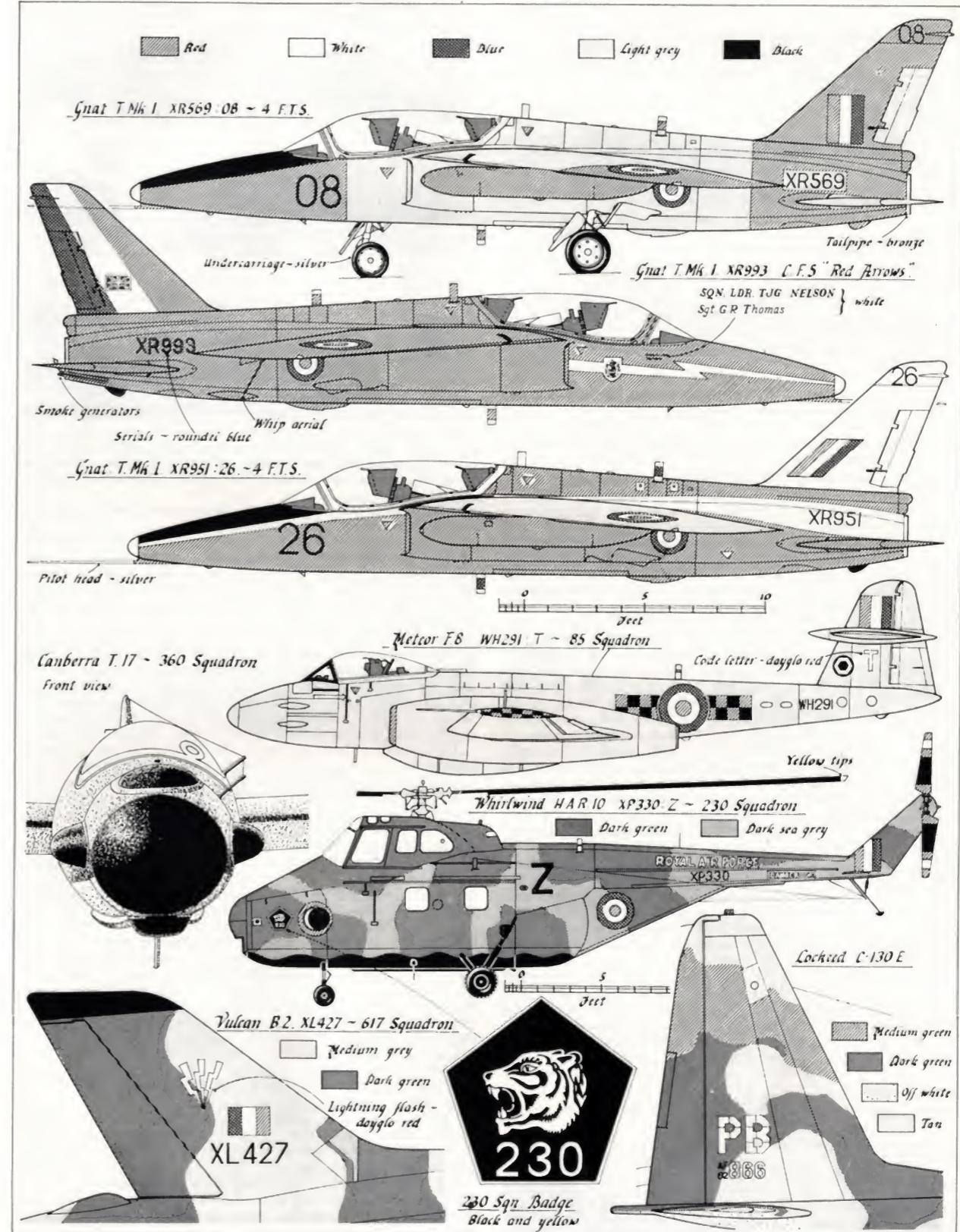
It remains to be seen whether the Chipmunk fleet will adopt the new red-white-grey trainer finish. Presumably it will, but during last year many Chipmunks were seen in the overall light grey finish. Two such were WB564:K and WB744:F of the Cambridge University Air Squadron. 'K' had its individual letter painted ahead of the roundels, the CUAS stripe, 'K' on the front of the nose also in black, full strip dayglo and the CUAS crest above the fin stripe. A small point to note is that the Cambridge UAS Chipmunks have six strips of dayglo on the four surfaces of the tailplane—some units have only four.

Continued on page 336

Opposite page; Some aircraft seen in Britain in 1969, including a trio of Gnats showing the three colour schemes most usually seen last year. The Whirlwind 'fin flash' was 18 inches wide and 24 inches high. The roundel outside diameter was 27 inches.

Drawings by A. M. Alderson

AIRFIX magazine



March, 1970

## Colours 1969 — continued

The Skylarks team of Chipmunks from CFS also went in for a grey finish with red strip dayglo. Their distinguishing feature was a tapering dark green lightning flash outlined with  $\frac{1}{2}$  inch wide black tape. Dayglo trim patterns are always difficult to describe, but in this case may be said to basically consist of two stripes on each side of the cowl, three stripes on each side of the rear fuselage, a wing leading edge stripe from tip to undercarriage, four wing tip stripes each cut in two and three stripes on each side of the tailplane also cut in two. CFS team's aircraft had black spinners except for WG348:11 which had green. Black numbers were painted in customary trainer style above the fin flash and on the front of the cowling where they were 6 inches high. Examples were WB738:15, WG304:04 and WZ877:05.

A handful of Meteors and Vampires remain in service, an anachronistic link with what seems a bygone world. One of the Meteors ambled across the sky at the Hatfield open day in July, Mk8 WH291, which was light grey overall with a red dayglo T on the fin outlined black. On its fin it also had a dark green hexagon outlined light blue with '85' painted on it in yellow. Aft of this was a small dayglo lion motif. Full 85 Squadron red and black checks were carried as they had been years before by 85's night fighters. Meteor T7 WA669 overall grey with red strip dayglo was also at that display. At Benson in September another Meteor 8 appeared, WK941, in light grey with strip dayglo and a black E on its fin. Under its wings it had yellow and black stripes, a link with the past rarely seen now, although still in vogue as witness its application to the Canberra TT18 now in service.

One of the saddest events of the year past has been the closing, almost silently, of famous RAF stations, notably Watton and Bassingbourn. The Varsities and Canberras moved from the former to Cottesmore which was also the chosen home for a small number of the once giant fleet of Canberras based at Bassingbourn. Remembering Bassingbourn from start to finish, from the days when I first saw its Hinds and Blenheims, I determined I should pay my last respects to the station before it closed. I therefore made two farewell calls, one to see its aircraft and one to fly in a Canberra.

A walk round the flight lines revealed Canberras in many different styles of finish. WH849 typified the old type of TMk4 garb, now dirty with years of wear. It was all silver with strip dayglo and an 8 inch fuselage serial. WJ869 showed a stage further on with its dirty silver finish, strip dayglo, large fuselage serial and serials on both nosewheel doors. WT480 was light grey overall with red strip dayglo, large fuselage serials and the motif of 231 OCU on its fin.

There was one disappointment—the thickness of the Canberra's canopy and its curvature played havoc with my photographs; I had at least been warned it might. So, I had to content myself with some less demanding ciné film to enjoy when memory was dimming—should it ever do so. But I doubt if I'll ever forget that gorgeous peel away for a stream landing!

As well as T4s there were some B2s like WJ637 all grey with red strip dayglo. WJ674 had no tail crest but this was featured by WJ728. There was no consistency in the dayglo trim but it seemed that five horizontal bars graced the fin interrupted to allow for the crest. Aft of the roundel on the fuselage each side had three bars, and there were three on the nose. A stripe ran along the wing leading edge from tip tank to engine nacelle and some machines had dayglo stripes under the wing tip. A few had a stripe on the wing tip tank, WJ677 being one such.

There has been little change in the fighter fleet this past year apart from the appearance of Phantoms, some in the black and white checks of 43 Squadron. An oddity at some of the public shows was the Lightning 1 XM147 of the Wattisham Target Facilities Flight. In natural finish it had yellow and black bars on a white nose rectangle. It bore a red 'felix' on the nose with a spread eagled cat cut out in dayglo material and pasted to the fin. An operational Lightning seen was XS928 'D' of 11 Sqn. One might surmise that its squadron markings would be of straightforward size, but I measured them twice and found they were 16 $\frac{1}{2}$  inches deep—what a curious world that of markings is.

Long suffering are those fighters from the war years, the surviving Spitfires and Hurricanes. Why, oh why, when they are so carefully tended, they have to appear in such awful paint schemes. I never cease to wonder. Repainting after the *Battle of Britain* film afforded a fine opportunity to attempt to right a wrong. Instead we have poor old LF363 carrying LE-D in memory of one of Douglas Bader's mounts of 1940. One would think that at least the painters would apply the correct shaped 'D'—they could barely apply LE



Above, top to bottom; Chipmunk WB562 of The Skylarks team in grey finish. Note glider towing gear beneath the tail as drawn on page 193 of our December 1969 issue. Canberra T4 WT483 in all grey finish, of 231 OCU Bassingbourn. Scout XP897 photographed at Mildenhall in May, 1969.

a white letter K on its black anti-dazzle panel, another marking once prevalent on the OCU's aircraft.

I paid my final visit to the station on May 8 last. Wing Commander Cowton had arranged for me to fly in a formation of twelve Canberras practising for a final fly by on May 19 when the unit moved to Cottesmore. We flew in four sections with myself third man in WJ728. After detailed briefing I took my place in '728 for take-off and soon was airborne. I extricated myself from the ejector seat to gaze at once on a beautiful sight—eleven other Canberras all jockeying into allotted places with WE192 very close by. From above her grey finish appeared very pale—what tricks the light can play with colour schemes! She had a small serial, strip dayglo and fin crest. After a wide circuit we sped across the airfield before going off to do some formation changes to give the Staff pilots some practise, against a bright blue sky with lovely cloud formations.

There was one disappointment—the thickness of the Canberra's canopy and its curvature played havoc with my photographs; I had at least been warned it might. So, I had to content myself with some less demanding ciné film to enjoy when memory was dimming—should it ever do so. But I doubt if I'll ever forget that gorgeous peel away for a stream landing!

Bassingbourn, whose colours I'd seen change over thirty years was now to turn into nostalgia. As I passed the gates I remembered how in the war years I'd been an excited visitor on many occasions to the 91st Bomb Group's B-17s, ducked as the old Wimpeys of 11 OTU roared across the road and sauntered along the lines of Ansons dispersed in Wimpole Park. But I digress . . .

There were some PR3s still in use like WE144 grey and green with light grey under surfaces and the cheetah motif. WF927 was all silver with large black fuselage serials and crest on the tail. All the Canberras had black anti-dazzle panels. The day after my visit WE139, the 1953 race winner, was due to fly to Henlow for preservation. It had earned its living to the bitter end, having not long before returned from Singapore. One oddity was WF924 which had

Below; Preserved Hawker Hurricane LF363 in its present state of suffering, posing as one of Douglas Bader's aircraft but with wrongly applied codes.



wrongly. But no, even here we have to bear a hideous affair. As for the colours used one may accept the green and brown as a fair attempt at reality, but the under surfaces—bah! Surely these exciting aeroplanes should wear the colours and markings they bore in service. LF363 could indicate something of its 309 Squadron days and the Spitfire XIXs ought decently to revert to PR finish.

It is always the oddities in the markings world that make it of such absorbing interest. Where the Army Air Corps is concerned markings enthusiasts can always be sure of a field day with the unconventional. Take, for instance, the Scout XP897, shown at the Mildenhall Armed Forces Day. Surely, one might suppose, it would at least have a standard sized serial. But no, on this type it is 5 $\frac{1}{2}$  inches high, and the diameter of the roundel was 9 inches. Another Army machine on show was a Beaver XP805 of No 132 Flight. It was the customary dark green and dark earth overall with ARMY in black. It had no roundels above the wings but the usual Type D under them, with white serials. Like quite a lot of Army aeroplanes it had Type C fuselage roundels the blue band being 4 $\frac{1}{2}$  inches wide, the white one inch. On its nose it had the crest of Strategic Command and its spinner was red. A gold and black crest decorated the fin.

Another Scout publicly shown was XT621. I gave up trying to measure its roundel in inches and found the blue ring to be 4 cm wide, the white the same, but the red 9 cm across. Convinced it must be 8 cm I re-checked to find my original measure accurate.

Argosy XP443 turned up with the Red Arrows at Mildenhall Armed Forces Day. Surely this at least would have standard sized serials—but alas no, these on the fuselage were 'too small' and in curious thin strokes. Nevertheless it was a handsome aeroplane in its two-tone brown and black finish. It had Type B roundels beneath each wing tip and grey underwing serials. '443' appeared on each fin in white.

Another camouflaged Argosy seen publicly was XR138. This had '138' painted white on the fins and the fuselage serial was 6 inches high. It had roundels above each wing tip and Type B beneath each tip. Serials appeared beneath both wings. Camouflage on the Argosies extends some way under the wing leading edges covering the entire leading edge panelling. My guide at Benson told me that the Argosy could carry a bomb load. Racks could, he said, be fitted externally, three to each side of the fuselage, each carrying a 1,000 lb bomb for counter insurgency operations. The sight for dropping these takes the place of that used for supply drops. On one rack an IFR pod could also be carried, but this has been experimentally tried only. I wished we had an Argosy kit; it would look good with bombs aboard!

Present interest understandably surrounds the Hercules now that we have a 1:72 scale kit available. There is little to say about their markings in 1969, except that in the closing weeks of the year they began to appear with their 'last three' in white above the fin stripe. Many have these digits on either side of the nose, also in white, and some have them in dayglo above the nose. Further details were given last month.

Helicopter markings have seemed fairly constant. Taken to task by a reader for what I wrote here a year ago, I particularly looked at 18 Squadron's Wessexes—they still carry only ROYAL AIR FORCE on their sides, as witness the example shown at Paris with black under surfaces.

Armed Forces Days always attract a good assortment of foreign visitors, and if you don't make a point of attending them then it's high time you did. A C-141A-45-LM 64-633A/4063 was at Mildenhall. Basically this had high gloss natural finish. But the tail unit was all grey and there were many grey areas on the huge machine—almost medium grey in places. All the abundant lettering which looks black is really dark blue, customary on American aircraft these days. A C-133A with it, 22-201B/62010, was also basically natural finish, and it had light grey propeller blades. In contrast the B-58 by its side was dirty silver. It had a blue fin serial and the SAC band on the nose bore the crest of the 43rd Wing as well as the SAC badge. 2440 appeared on the nosewheel door in pinkish dayglo. Once it had worn a large 43 on the starboard side of the fin, and it hailed from the 64th Bomb Sqdn. A dirty painted silver finish characterised the KC-135s on show, and they bore few other markings of interest.

No account of last year's markings in British skies would be



Above, top to bottom; The B-52H 10027 which came to Britain for the Mildenhall Armed Forces Day, and whose colours are described on this page. WH724, a Canberra T17, has been seen at several displays this year. Lockheed C-130E PB-799 camouflaged in greens, tan and the off white colour the Americans call grey.

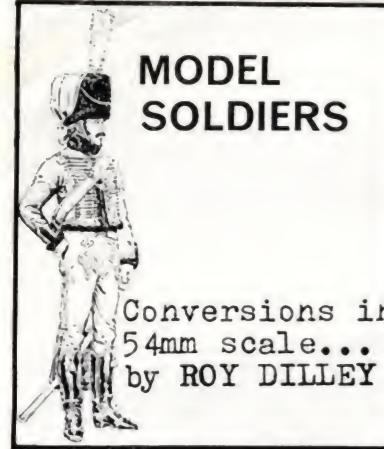
complete without reference to the B-52H-BW-145 which looked in at Mildenhall. 61-027/10027 with 1027 in black on the nose sides, its camouflage contrasted noticeably with that of the British-based American machines. It was dark green, olive green and tan—Alf Alderson reckoned the tan to have a greenish tint. Certainly the colours had a more greyish tint than we are accustomed to seeing on British based F-4s and F-100s. It had the usual 'grey' under surfaces except for the tailplane which was cream. There was also cream on the under side of the fuselage adjacent to the tailplane, and the under sides of the leading section of the wings was grey. These colours had been worn by the machine, from 34th Squadron 17th Bomb Wing, when it was used in action over Vietnam. Under the nose it was glossy white—some American fighters have panels of white now—and the areas around the air intakes were silver. It had flown here from Wright Patterson Field in 7 hours 15 minutes. When it took off the outrigger wheels overhung the runway edges—a vast monster indeed. Yet, by leaning on these wheels, it was possible to rock the great machine.

Several Belgian RF-84Fs turned up at the displays. FU-134 was painted on the nose and tail of one in white on the two-tone green-tan and 'grey' finish now applied as on the F-100s of the USAFE. This aircraft had roundels above the wings only outlined with a  $\frac{1}{2}$  inch ring. The red ring was 3 1/10 inches wide, the entire roundel diameter being 18 6/10 inches across. Another machine, FR-31, had these figures on the nose 17.6 cm high and previously was 53/7644. It had a note on the rear fuselage '27.1.69 Fairey Gosseliers' which may have been the date of last painting.

Belgium also supplied a team of Fouga Magisters for the Wethersfield field display. These were all red with a 7.7 cm wide white fuselage cheat line. Under the starboard tailplane each had MT stencilled in black 17 cm high on the yellow stripe. A white number 5.7 cm high was painted near the tailplane, and on the fuselage the 'rings' were black central 18.5 cm, yellow ring 8.7 cm wide, red ring 9 cm, blue ring 3 cm wide. A crest appeared on each side of the nose and there were roundels above the wings.

The first American aircraft to come to Britain wearing code letters on their fins were C-130s. One of these seen at Wethersfield had AF LM 62 850 on the fin. AF and 62 were in black, the rest off-white. The machine belonged to the 36th TA Sqn, 513 Tact Airlift Wing. With it was the crew chief who said that the C-130 stolen from Mildenhall was 63-7789—he had been flying with it two days before. A C-130E 75-LM on public show was 62-1799A camouflaged as usual but with glossy panels under the wings aft of the engines. On its fin in the almost white 'grey' of the under surfaces was PB 799 preceded by 62 V in black. This machine of the 464th TAW based

Continued on page 339



IN recent months several books have been published on the subject of miniature figure modelling, notably *How to go Collecting Model Soldiers* by Henry Harris (Patrick Stephens Ltd). It is the aim of this series of articles to supplement such books, and to deal in detail with some individual conversions of commercially manufactured models, utilising bits and pieces from Airfix and other makers in 54 mm scales.

The techniques of plastic figure conversion, such as cutting, carving, cementing, painting, etc, can be acquired to a very satisfactory degree by patience and practice. However, it is also by the exercise of his imagination, the application of knowledge gained by thorough research, and above all by constantly remembering that he is seeking to represent living beings, that the modeller and converter can gain the best from his efforts. 'The Proper Study of Mankind is Man', is a motto we may well adopt unless we wish to end up with a collection of miniature tailor's dummies. Much of what I have to say on this subject applies equally as much to model horses, mules, camels, dogs, etc, as it does to Man.

Speaking generally, the outstanding characteristic of living creatures is their ability to move. The unclothed human form is capable of assuming a great variety of attitudes, restricted only by environment, the degree of fitness of the individual, and the purely mechanical limits of travel of the joints. Except in the case of savages however, and some of the Ancient peoples, the form is seldom completely unadorned, and

**Below:** Mobile AA gun, 1918. The De Dion car is a converted Airfix Rolls-Royce, and the crew are a mixture of old lead Britains' figures and modern plastics. Seated sergeant, far right, started life as the conductor of the Airfix B Type Bus.



**Above:** Creative figure modelling relies as much on capturing the atmosphere as on clever conversion. Here in the last months of peace, 1914, two Yeomanry officers in undress uniform confer with khaki-clad staff officers. The Yeomanry car is a Revell Mercer, the Yeomanry officers are converted Airfix MotorAce spectators, and the staff officers are converted Britains' series Canadian Mounted Police.

further limitations to freedom of movement are imposed by clothing, equipment, loads, and the like. The convincing model must mimic the attitude, and although itself static, must in some cases convey an impression of the movement of its living prototype.

When a model is produced commercially, its pose is subject to all the factors operating on the living person or creature it represents; but it has, in addition, to conform to the limitations of attitude dictated by the mould from which it is manufactured. Such matters as the overall size of the mould, absence of undercuts, etc, all affect the figure, and these additional restrictions can result in stiff, 'wooden' attitudes, or in the case of action positions, in strained, implausible, or even impossible poses, anatomically speaking. It can therefore become the converter's pleasant occupation to release such a piece from the bonds of its mould-imposed stiffness or contortion. Of course, the great majority of commercial figures do not suffer unduly from this kind of defect, and for the most part the converter is able to draw on soundly designed material from which to create new attitudes, orders of dress, or whatever.

The position that a figure adopts is able also to convey, in some measure, an attitude of mind. For instance, the bowed head and slumped shoulders of a defeated soldier in full retreat may denote not only physical exhaustion, but also dejection, and even shame; whilst the erect carriage, precise stride, and jauntily swinging arm of the parading Guardsman convey his self-confidence and pride of unit, as well as the competence of his drill-sergeant.

Although a detailed study of anatomy is not required, the budding figure converter should have a working knowledge of the form to alter or adapt an existing figure before a single cut is made. I call it the 'Five W's'—Who? What? Where? When? and Why? Of course it is unnecessary to use all these questions in every case, but, particularly in the case of 'non-parade' figures, I have found it very useful. Let us examine each heading in greater detail.

**WHO?** Is the figure to represent an actual personality, eg, 'The Duke of Wellington'? If so we may be able to find prints, pictures, or in some cases photographs (though not of Wellington!) to help us with the characterization. If not a personality, try to be as specific as possible about the identity of the prototype, eg, 'a sergeant of the 4th Royal West Kent Regiment'. Such precision is helpful when we

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come to consider details of unit markings, uniform, badges of rank, etc.

**WHAT?** What is the figure to be doing, and how is it armed? Is it to be running with a Sten gun; limping unarmed; in a 'drill position' with rifle and fixed bayonet; cleaning a musket; stacking ammunition boxes; looking through a telescope?

**WHERE?** Consideration of this question can be both general, eg, France, Burma, Waterloo, Arnhem, and also specific, eg, in a 'dug-out'; crossing thick mud; in a bamboo thicket; behind a ruined wall; on the brow of a hill, etc. The conditions of environment are important, for as is readily apparent, a man running across a dry grassy field can adopt a very different style from the same man crossing the same field after heavy rain and bombardment have churned it into a sea of mud.

**WHEN?** This covers the actual or approximate date, eg, June 18, 1815, 4 p.m.; Winter 1917, dawn; Autumn 1944, morning; and the circumstances of the time, eg, during a charge; before a 'big Push'; after a reconnaissance; during a lull in the battle; and so on. Time of day is also important in diorama work for accuracy in lighting arrangements.

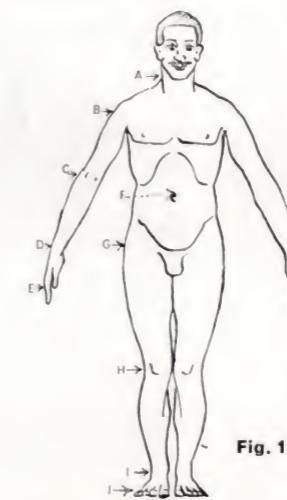
**WHY?** Here the reason for the action or location of the figure is examined, eg, observing enemy reinforcements; establishing a supply dump; seeking cover from fire, etc.

By using this formula, one is able to arrive at a comprehensive mental picture of the proposed figure conversion, for example:

(1) The Duke of Wellington seated on horseback and observing enemy reinforcements through his telescope, from the brow of a hill at Waterloo, during the afternoon of June 18, 1815.

(2) A sergeant of the 4th Royal West Kent Regiment running with a Sten gun across a muddy jungle track in Burma, Autumn 1944 seeking cover from enemy fire, whilst on patrol.

Having this image of the figure in one's mind's eye, one is now able to make use of research data to establish details of dress and equipment and possibly even probable mental attitude, to suit the circumstances. Thus we have Wellington in his cocked-hat and hunting coat, calmly sitting his horse, and concentrating his attention on the French reinforcements; or the sergeant, in muddied jungle green, frantically lunging for cover beside the track. The attitudes practically suggest themselves now. Wellington leans forward slightly in the saddle, right arm raised to hold the telescope firmly to his eye, bridle arm ready to check undue movement from his charger. The sergeant bends almost double, one leg thrusting back, the other pushed forward, arms thrown out to maintain balance, and eyes fixed on to cover to which he is headed. It would have been difficult to get all this from just 'Wellington at Waterloo', or 'Infantryman in Burma'.



**Top:** Navigation Jeep of the Long Range Desert Group is converted from a Monogram klt, but the crew are all converted Airfix MotorAce spectators. **Above:** Joints of man and beast roughly correspond for animation purposes though relative positions differ. **A**—Neck: flexible, permitting movement in all directions, eg swivelling and rocking. **B**—Shoulder: ball and socket; permitting all round movement. **C**—Elbow: hinge; free movement upward (forward), none backward. **D**—Wrist: complex hinge; limited all round movement, mostly forward and backward. **E**—Fingers: hinge; forward movement only, but can splay out. **F**—Waist: complex swivel; free forward movement, limited backward; permits the upper trunk to swivel side to side, and to bend laterally. **G**—Hip: ball and socket; free movement forward and sideways, none backward. **H**—Knee: hinge; free movement backward, none forward. **I**—Ankle: complex hinge; as for wrist. **J**—Toes: hinge; as for fingers.

with in other articles in the magazine. Bear in mind, however, that 00 size conversions (usually carried out in some numbers) are normally much simpler than equivalent 54 mm figure conversions. For instance what can be depicted by a crafty coat of paint and a little scraping on a 00/HO figure may well involve major reconstruction on a 54 mm figure.

## Colours 1969 — from page 337

at Pope AFB had a camouflaged radome.

F-104Gs of the Luftwaffe and RCAF were seen at last year's shows. A Luftwaffe example had 7048 in small black fin letters. Its finish was dark green dark grey light grey. 21 + 79 appeared on the nose in black outlined white. The numbers were 47 cm high overall the outline being 2.3 cm wide. The centre of the Balkenkreuz measured 71 cm across the black. A CF-104 of the RCAF was silver with white wings. It had CAF on the nose in black, the R having been removed. CAF-733 on the nose was 30.5 cm high. On

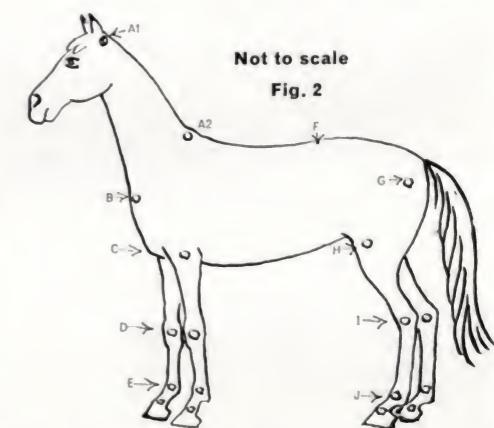
the starboard engine intake was painted FORCES ARMEES CANADIENNES in red partly outlined black. 12733 was on the fin in black. The fin flash was red-white-red and the blue-white-red roundels had a red maple leaf centre.

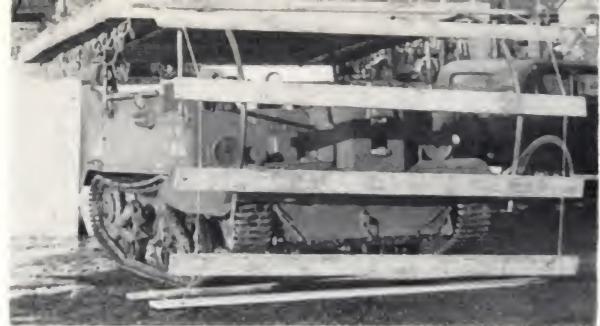
All in all 1969 was an interesting year markings-wise. At a glance the markings seemed standardised—how wrong a simple glance had proven to be. It is becoming increasingly difficult to describe the complicated markings, let alone to model the aircraft accurately. Long may the challenge remain.

Armed with this sort of impression, one can much more easily decide upon the actual pieces to convert, what torso is nearest the required attitude, what legs and arms can be animated most readily to give the best effect, and so on.

By applying what he has learnt from research about personalities, characteristics of various types of troops and their equipment, and by using all or part of the 'Five W's' formula to make it all 'jell', the converter can look forward to even more pleasure and satisfaction from the creation of his models.

Next month's article will be devoted to some actual conversions of readily obtainable plastic figures. Meanwhile this month some typical figure conversions are illustrated to show the sort of thing to be covered in future articles. I must stress that these articles will deal almost entirely with 54 mm (1:32 scale) figures though some of the techniques to be described are equally suitable to the popular 00 size figures dealt





Above: The experimental Crossing Device tested in 1941.

## Part 9: Specialised types

CARRIERS were used in scores of specialised roles, many of them being no more than experimental. Those fitted as carpet layers and for demolition work are described in this section of the story.

**Universal Carrier with Carpet Device, Mk I, Mk II and Mk III:** The Carpet Device consisted of a reinforced Hessian carpet wound on a horizontal metal reel carried above the ground, across the front of the vehicle by side arms attached to the vehicle. Its primary object was to enable the vehicle to cross barbed wire obstacles and to leave a pathway for following infantry and vehicles.

On meeting the obstacle, the weighted free end of the carpet was dropped on to the ground, whilst the vehicle ran forward. As soon as the tracks ran on to the free end, the carpet continued to unwind itself from the reel automatically, so that the carrier ran over it across the obstacle. After the carpet was laid the reel and framework was jettisoned. The three types were as follows:

Mk I (Infantry)—150 ft long x 11 ft 6 in wide. For general use with Carriers.

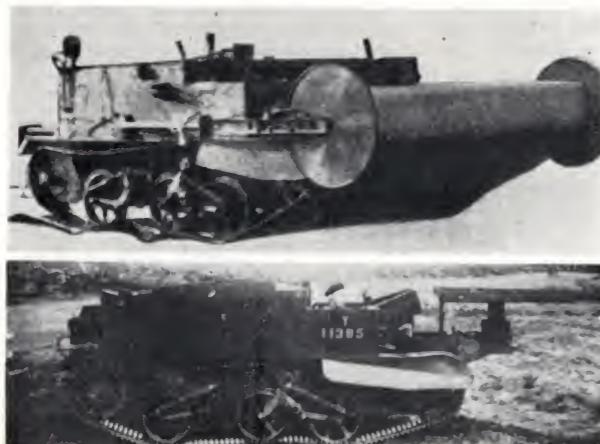
Mk II (Infantry)—150 ft long x 11 ft wide. For general use and operation from LCTs.

Mk III (LCM)—150 ft long x 8 ft wide. For operation from LCMs, hence the reduced width.

Trials were first made with a carpet device fitted to a Cruiser Tank Mk I (A9) in March 1939 and by June 1940 a design had been prepared for a similar device for fitment to a Matilda II. Experiments during 1941 with a carpet device fitted to a Universal Carrier were concluded with satisfactory results, and by the end of the year a production order for 500 devices for fitment to the Universal Carrier was placed. In practice, however, these carpet devices were rarely used except on exercises.

**Universal Carrier with Crossing Device:** This experimental device for crossing swampy or sandy ground was tested in

Below: Universal Carrier with Carpet Device Mk I. Bottom: Universal Carrier with Kid demolition device on front.



1941. The device consisted of a carrier with a tubular frame mounted on its superstructure, the frame extending and curving over the front of the vehicle. Carried on the frame was a number of linked wooden slats. The action of this device was similar to the carpet device. The carrier ran on to the free end of the wooden slats and the device automatically uncoiled as the carrier moved forward creating its own pathway.

**Universal Carrier, Fitted with Demolition Device (Kid):** Evolved during 1944 for the demolition of small concrete walls by remote control, this experimental device consisted of a carrier with an adjustable metal frame mounted on the



front of the vehicle. Attached to the frame was 600 lb of explosive. The frame of explosive was carried in a horizontal position until the obstacle was within range (200 yds). The frame was then moved to an upright position and the carrier was set on its course by the driver who jumped out when within effective range. The charge was automatically fired on contact and the carrier was considered expendable. The name 'Kid' was a diminutive from the similar Goat device used with the Churchill tank.

**Towed Carrier, Fitted with Conger 2 inch Mk I (Line Charge):** Evolved in January 1944 for mine clearance in assault, this device consisted of an engineless Universal Carrier containing a 5 inch Rocket No 3 Mk I and projector, air bottles and a tank of explosive. Fitted to the rear of the carrier was a wooden box containing 330 yards of 2 inch woven hose. The carrier was towed to the edge of the minefield and released by the towing vehicle (Sherman or Churchill AVRE). The empty hose was attached to the rocket which was fired from the projector across the minefield so that it lay extended across the field, one end of the hose still being connected to the carrier. The hose was then pumped full of explosive by compressed air. When sufficient explosive had been pumped into the hose the hose was disconnected from the carrier, which was removed. The hose was then fired by a delay pull ignitor. The blast of the explosive hose detonated the mines in its area, thus creating a limited pathway through the minefield. The device saw limited service. Carriers were converted to Conger configuration by the well-known lock-making firm of Chubb & Sons Ltd, Wolverhampton.

**Universal Carrier with Conger 1 inch Device (Line Charge):** Evolved during March 1944, but not used in operations, this was a similar but smaller version of the Conger 2 inch. Carried in the Universal Carrier Mk II, the vehicle was fully self-propelled, retaining its engine. The line-charge equipment could also be fitted to any carrier that had been



The Conger 2 inch Mk I on an engineless carrier showing hose for pumping in explosive.

modified to take Wasp FT equipment.

**Carrier with PIAT Battery:** Improvised by the Canadians in 1944, this consisted of 14 PIAT (Projectile Infantry Anti-Tank) projectors mounted on a frame at the rear of the carrier in two series of seven. Each row could be fired simultaneously by means of a mechanical contrivance of steel rods attached to the firing triggers. A few vehicles so fitted were used in Europe in 1944-45.

**Carrier Mine Clearing:** This was a post-war device used for the clearing of mines on British beaches and consisted of a carrier mounting a powerful water jet in the front superstructure, protected by armour shield. The water supply was obtained through hose pipes connected to reservoirs placed at a safe distance. The direction of the jet was controlled by



Left: Carrier, 25 mm Hotchkiss SP, showing added driver's shield. Right: Extemporised flotation device; see Part 8.

an operator who was linked by phone to the water supply.

**Carrier, 25 mm Hotchkiss SP:** A local conversion of the carrier to a self-propelled mount for the French 25 mm Hotchkiss anti-tank gun, carried out by the French forces in Syria.

**Praying Mantis:** The 'Praying Mantis' was designed and built by Messrs County Commercial Cars Ltd of Fleet, as a light armoured fighting vehicle, able to use natural cover to the best advantage. This feature was achieved by means of an armoured driving and fighting compartment that was able to be raised from the prone position to the horizontal until the gun mount was raised 12 ft above the ground.

The idea for this type of vehicle came about largely as a

Below: Carrier AA, described in Part 8.



result of observations of a tank action during the first world war by a machine gun officer, Mr E. T. J. Tapp, who conceived the notion of developing a one-man armoured machine gun carrier with a low silhouette, but with a mechanical arrangement to enable the machine gun to be raised and fired from concealment. No more happened about the project until 1937 when the possibility of war again arose and Mr Tapp contacted General Sir E. Swinton, who showed great interest in the idea and urged immediate development of a prototype model. Work on the one-man machine was commenced late in 1937, trials taking place in October 1939, watched by General Martel, who as a result decided that a two-man version would be more suitable both from the consideration of morale and the control of the vehicle and its armament. Dimensions for this one-man vehicle were 4½ ft wide and 2½ ft high with the machine gun lowered.

Design work on a two-man machine was begun and completed by December 1940 but work on the construction of the vehicle was halted due to its low priority and the more urgent and heavy commitments for standard types of AFVs.



Above: The Praying Mantis with guns lowered and raised respectively (All photos Imperial War Museum).

In October 1941, interest was again revived and the original one-man machine was made ready for further demonstrations and tests. Resulting from this, in May 1942, a contract was placed with County Commercial Cars Ltd for the production of a two-man vehicle. This machine was built and tested over the period October to December 1943. Again due to now diminishing requirements for this type of vehicle, the Praying Mantis (given to the vehicle due to its resemblance to the insect of that name) was returned to the manufacturer to be held in store. In June 1944 consideration was given on the use of this type of AFV for jungle warfare in the Far East but with no result and the idea was officially dropped.

For the construction of the Praying Mantis, standard Universal Carrier parts were used, the tracks being increased in length by having an extra 21 links inserted in each. A

Continued on page 350



Right; For those who want the civil version of the DH 4A, this picture makes a useful guide. Instone Air Line's aircraft G-EAMU was medium blue with white lettering and tail fin, but with silver doped wings. Lettering below cabin reads 'Instone Air Line Ltd' 'Kings Cup Machine'. Note how tail is jacked up to allow passengers to enter (Flight International photo).

# The DH 4A

Transport variant of the DH4 modelled  
by Alan W. Hall

THE Airfix DH 4, like the Hart, Avro 504 and other kits in the pre-war range make admirable conversion subjects either as a whole or by virtue of the many bits and pieces that can be taken from them.

This month I have built one of the simplest conversions of the DH 4 and offer two methods of changing the bomber into its transport equivalent, the DH 4A. Only a few of these were built, primarily for RAF communications work, but as the aircraft had a two-seat cabin and un-staggered wings the designation DH 4A was applied in order to distinguish between them.

No 2 (Communication) Squadron, 86th Wing, operated these aircraft in March 1919 for use on the cross-channel route between Kenley and Buc near Paris. A daily courier and mail service was operated in each direction and one of the aircraft had the distinction of carrying Mr Bonar Law from Buc to Kenley with the Prime Minister's historic letter to the King advising him that the Peace Treaty had just been signed. The squadron disbanded in September 1919 and the aircraft were sold to Handley-Page Ltd among hundreds of other war surplus machines.

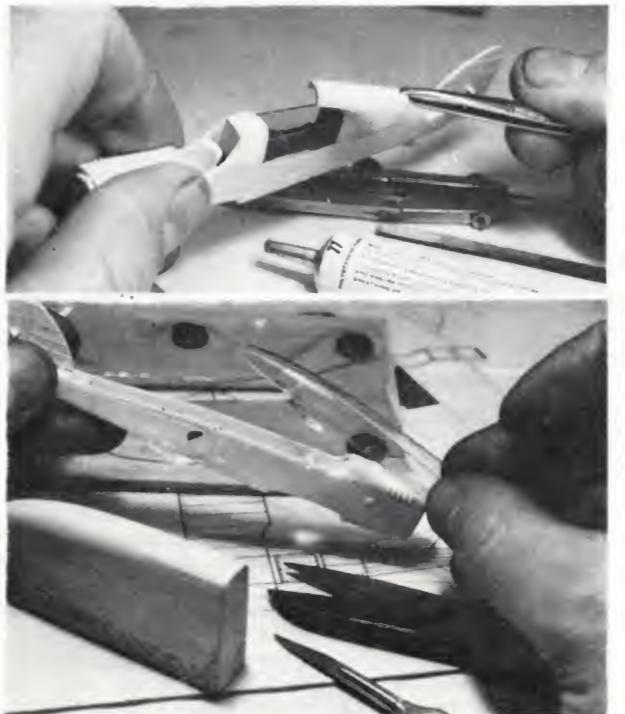
Several other DH 4As were built specifically for the civil market. One of these inaugurated the first British commercial cross-channel air service and on November 10, 1919, G-EAHF carried the first civilian air mail to France at 2s 6d per ounce. The subject of this conversion F5764 became G-EAWH after its acquisition by Handley Page. The drawing, however, depicts it in RAF service.

Two methods can be used to produce the humped-back cabin on the DH 4A. I tried out both to see if they were practicable but in the end favoured the built-up method as this was inclined to be the stronger of the two. I first favoured moulding the complete fuselage hump in acetate sheet, with the joint filled and sanded down. By the time this had been completed however the joint became so wafer-thin that a knock later in life would have brought it away from the rest of the fuselage and any subsequent repair would have left an ugly, hard line at the join—if indeed it could have been done. The details of the conversion are therefore mainly concerned with the built-up method of construction though I have included photographs showing how the moulding method was done.

**STAGE 1** The two fuselage halves are glued together and left overnight to dry out thoroughly. Then the top rear fuselage from the pilot's cockpit to the fin is cut off with a fret saw or razor saw, following the line already engraved in the fuselage except for the last half inch near the fin. A piece of balsa as thick as the width of the fuselage and roughly cut to the side view elevation is then stuck in place and the construction again left to dry out overnight. (Picture below)



Below; The easiest way of making the rear cabin is to use balsa, cutting off and hollowing out the cabin section as described on this page in Stages 2 and 3. Here the hollowed out cabin top is added after cabin windows are in place and interior is painted and detailed.

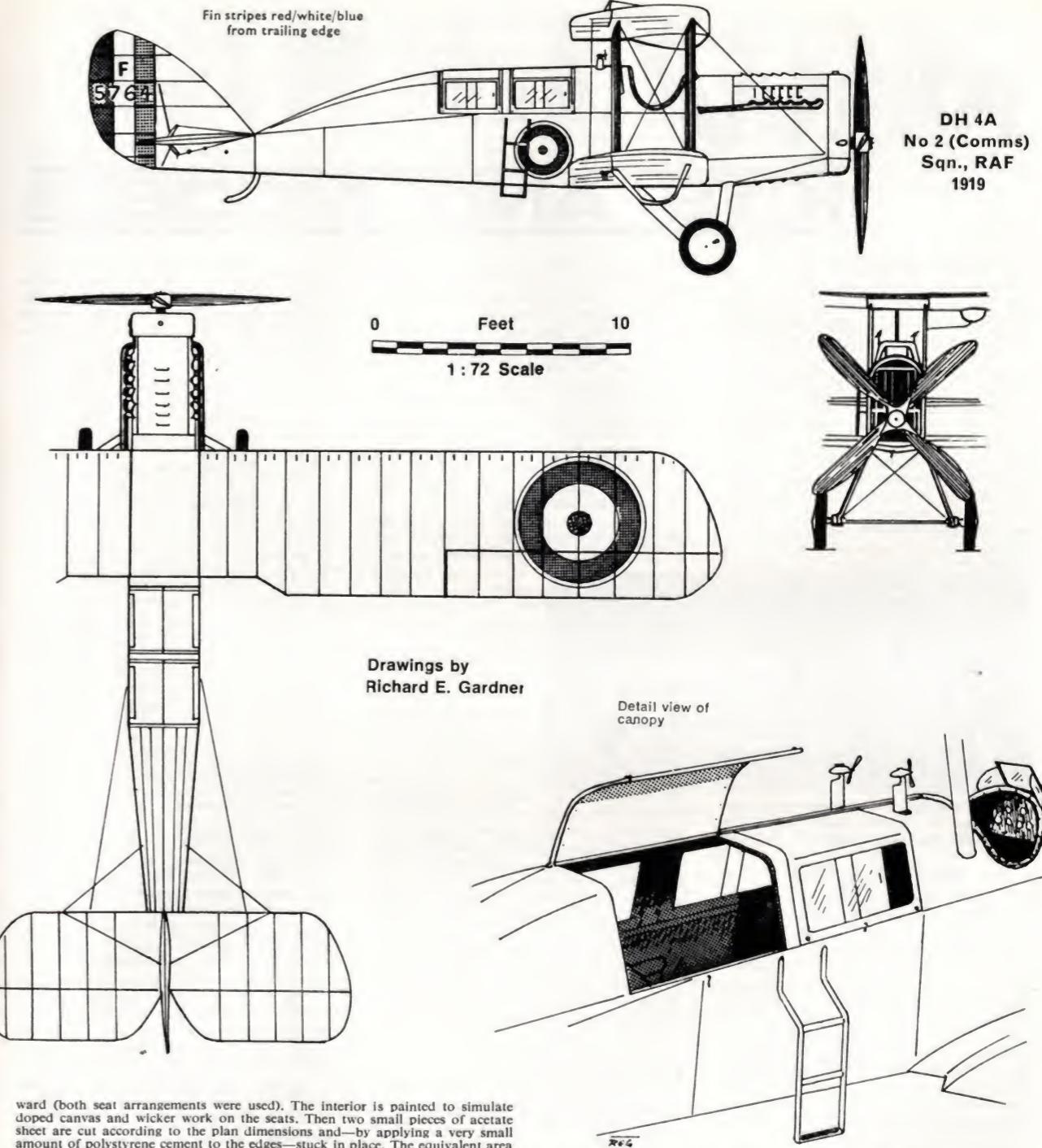


Above; For those who wish, it is possible to mould an acetate rear fuselage top, using the balsa mould shown in the foreground. Tried on this particular model, however, it proved slimy and unsatisfactory in practice.

**STAGE 2** The job of shaping the new fuselage section can now begin. This was done with a knife and fine sandpaper for the main area and by a file for the cockpit. All of the wooden part is then liberally coated with talcum powder and clear dope filler, sanded down and re-coated if necessary to remove all trace of grain and join lines.

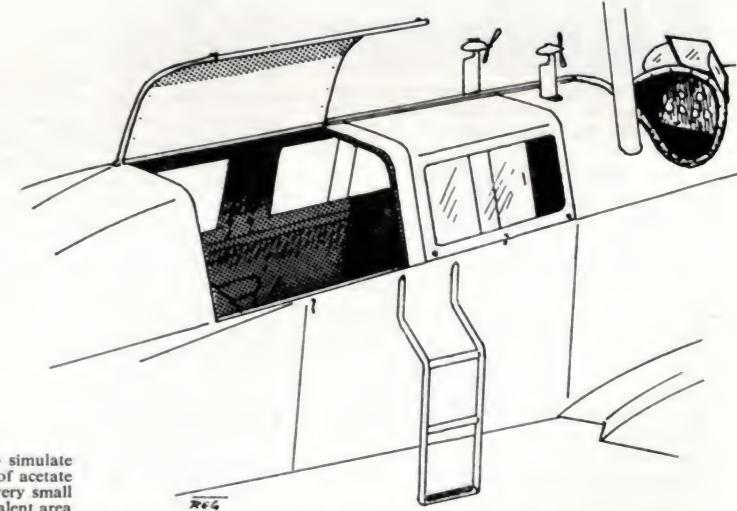
**STAGE 2 (alternative)** To cast the rear fuselage from acetate sheet I built up a former to the right size and profile of the part to be added and also cut the female part of the mould from  $\frac{1}{8}$  inch thick obecchi sheet. A thick sheet of clear acetate was used allowing plenty over the edge of the mould to take up the shape created when the sheet was heated and the male mould pushed through. You will find that the edges of the sheet become very thin and care must be taken to cut the final shape without cracking the edges. The wall behind the cockpit is put in place before the cast shape is stuck on and the whole section is carefully sanded along the joint lines to finish it off. This is by far the more difficult operation of the two and though experienced modellers may prefer it, I reverted to the 'all-balsa' method for reasons stated in the introductory notes.

**STAGE 3** Returning to the choice of a wooden fuselage top, the section in which the windows appear is now cut off leaving a gap and exposing the interior of the plastic part of the fuselage again. Interior detailing can now take place—the seats coming from the spares box and placed face to face or both facing for-



Drawings by  
Richard E. Gardner

Detail view of  
canopy



Below; Cabin completed and with windows masked for painting. Wheels are here being painted.



Continued on page 350

# NEW KITS AND MODELS

## CONVERSION KITS

THE Airmodel conversion kits, previously reviewed in these pages last summer are now being imported by Argyle Models, Central Station Bridge, 247 Argyle Street, Glasgow C2, so that the kits should be more readily available to modellers in Britain. We've now had the four latest releases in the series, consisting of kits for converting the Airfix Starfighter into the TF-104G or F-104A, the Mirage IIIC into the Mirage IIIR, the Dornier 217E-2 into the 217J-1, and the Frog Me 109F and Ju 88 into the impressive Mistel combination. As before, each kit consists of an instruction sheet with scale drawing and colour-schemed details, plus polystyrene parts, matching the original plastic kits, enabling the modeller to alter the existing kit as he builds it. For instance, the Mirage IIIR set contains a new longer nose, extended cockpit fairing, and a new exhaust pipe and fin fillet. The Do 217J-1 features simply the new solid nose and machine guns of this night fighter variant. Price of each kit is 7s 11d which sounds on the high side, but many will consider it low for the convenience of having all the parts ready made. In the case of the Mirage IIIR you get much more for your money than you do for, say, the Dornier 217J-1, so the choice of whether or not the Airmodels kits offer value for money really depends on your own skill and bank balance! C.O.E.

## NEW HISTOREX

LATEST release from Historex in their extensive range of 54 mm (1:32 scale) model soldier kits is a delightful twin kit, first of a new 'personality' series, featuring Louis XV and his consort, Marie-Leczinska. This new series will feature famous historical figures roughly contemporary with the period of Historex regimental models. There are several attractive new features in this kit, including a beautifully printed colour plate showing both characters and intended as a detail painting guide. There is also a black plinth on which the finished models can be mounted. A further innovation as far as Historex go is the moulding of the bodies in one piece instead of in a multitude of small component parts. In this kit only the arms and feet are separate, allowing, however, a degree of variation in assembly. The figures are moulded fully dressed, but with optional cloaks and a separate sword and sceptre for the king. Because of this, the kit should be ideal for beginners (or indeed lady modellers attracted by the quality of the Historex range) as much less basic assembly work is needed than in previous

Historex kits. The quality of the moulding is unbelievable with virtually no flash or mould lines detectable in any way on our sample. Those familiar with paintings of Louis XV will also be impressed by the instant likeness that Historex have achieved. The moulding detail equals, if not exceeds, previous Historex quality with a remarkably fine texture in the clothes and cloak, and minute detail like perfect fleur-de-lys incorporated on the latter. The kit costs 30s 0d, direct from Historex Agents, 3 Castle Street, Dover, Kent, or from specialised model shops (like BMW) who now hold Historex stocks.

Another new product being supplied through Historex Agents is a useful modelling tool specifically intended for converting, adapting, or assembling Historex figures. Called the Lefranc Pyrogravure it is intended in the first place for 'poker-work'—the art of burning patterns in wood. However, Historex sell it as a tool for providing instant heat where needed to melt the plastic in conversion or remoulding. It consists of a transformer/control box which plugs direct to the mains and gives a suitable low voltage direct to the 'needle', the latter resembling a light soldering iron in appearance. There is a control arm on the box which allows the temperature of the head to be adjusted to any required degree of heat, and there is a selection of differently shaped heads available. Obviously the Pyrogravure has plenty of potential value for all keen plastic modellers, not just for Historex conversions. It costs £3 17s 6d complete, postage extra. We hope to give a more extensive report when we've had a chance to try one of these devices over a longer period.

Descriptive literature on the Historex range and the Pyrogravure can be had direct from Historex at the address given to anyone who sends a large SAE. C.O.E.

## SOVIET SST

ONE of the Japanese manufacturers who have not previously put out many aircraft kits is Nitto. We are therefore more than pleased to review one of their range which is perhaps a lucky choice for the collector of Airfix Skyking 1:144 scale kits. Although the box top claims that the model is to 1:132 scale this proved to be false once we put our scale rule over the main dimensions, for this version of the Tupolev TU-144 is almost exactly 1:144 scale.

The model, moulded in white plastic, contains 48 parts and is very simple indeed to construct. The instruction sheet in English is a good guide and Jones Bros of Chiswick are selling the kit for 19s 11d

(they provided our review sample) which is good value for the quality and ideal for the civil aircraft collector favouring this scale.

From the small amount of information available on Russia's SST we were able to check that the outline of the kit is accurate with perhaps some slight modification needed to the jet orifices. The model needs a fair amount of weight in the nose to make it stand correctly and the transfer sheet, although simple, seems to be accurate as far as colour goes.

We look forward to more kits from Nitto of this type. Perhaps they will decide that as Airfix have started a vogue for 1:144 scale that they will follow. Collectors will certainly welcome any additions to the range outside the Airfix offerings. A.W.H.

## SKYBIRDS REVIVED

READERS who recall the old pre-war Skybirds range, and those who followed our articles in the April 1967 and February 1969 issues, will be familiar with the wide appeal that these old models had. Quite apart from the exciting range of 1:72 scale wooden aircraft kits which Skybirds produced, they also made a big range of airfield and military accessories cast in lead, all to constant 1:72 scale and all delightfully modelled for their time. Now we hear that Acorn Models, 261 Gower Rd, Swansea, has acquired some of the old Skybirds moulds and will be re-releasing some of the Skybirds accessories which are still of use to modern modellers. In some cases they will make replica moulds to fill gaps in the range of moulds they hold. Acorn Models have also got the rights to the Skybirds name, apparently, and their catalogue also includes a facsimile of the 1936 catalogue. The first batch of models released includes the pilot and ground crew figures and some of the British military figures, in addition to the Scammell 6x4 artillery tractor and field gun.

We have received samples of the Scammel and some of the British figures for review. The Scammel is based on the familiar 6x4 chassis as used in the Airfix Tank Transporter kit and we featured a conversion to the artillery tractor as modelled by Skybirds in our September 1963 issue. The Skybirds model now costs 6s and comes as a plain casting less tyres, presumably to keep costs down. In 'naked' form it looks rather crude, but with added Corgi Toys tyres and a card cab back, plus painting, it becomes a pristine show piece, of character. The figures will probably interest most modellers. They also come unpainted, at 1s 3d each (the price of a set of six, pre-war). The new price, however, is

Continued on page 346

AIRFIX magazine

# MODEL TOYS

PLASTIC KIT SPECIALISTS—ASSOCIATE MEMBER I.P.M.S.

FROG *re-issued, new decals		HH-3E "H.G.G." Hel.	1/72	15/-	REVELL	1/72	3/-	C.F.11c-2 biplane	1/72	11/3
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P-40E Kittyhawk*		Avro CF-100 Canuck	1/70	15/-	P-40F	1/72	16/-	DO-17Z	1/72	24/-
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Macchi M.C.202*		Albatross D-3	1/48	15/-	P-51B Mustang	1/48	16/-	DO-17Z	1/72	24/-
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Tupolev SB-2		Ki-84 Hayate (Frank)	1/72	5/11	A. Shackleton MR.3	1/72	22/-	DO-17Z	1/72	24/-
D.Havoc/Boston*		J7W1 Shinden canard	1/72	5/11	G8N1 Renzan (Rita)	1/72	25/-	Hawk	1/72	24/-
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(Above): Frog/Hasegawa kit finished as F-100D 56-3000 "Triple Zilch", of the 20th TFW, Wethersfield, U.K. circa 1960. Model by Richard L. Ward of Modeldecal.

## MODELDECAL DECALS

### SHEET NO. 3 1/72 scale

Four alternative finishes for the F-100D Super Sabre in USAF service.  
56-3000 "Triple Zilch", 20th TFW Wethersfield, U.K. circa 1960.  
55-3712 "Pahokee Tiger", 307th TFS, 31st TFW, Vietnam, late 1965.  
55-3604 416th TFS, 31st TFW, S. Vietnam, late 1965.  
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6. P-40 I-IV Kittyhawk in RAF, SAAF, RAAF, RNZAF and RCAF service.
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## New Kits — continued

just about the same as most other lead OO size figures now available. All feature British troops in service dress and steel helmet, suitable for the 1916-39 periods, so they very nicely complement the Airfix troops in 1914-15 dress. There are some gems among them, notably a very fine despatch rider, a splendid Vickers machine gun on tripod mount, and an officer with field glasses. The other figures are in 'action' poses.

We look forward to seeing more from this revived range, especially the aviation figures. Also available from Acorn Models is a facsimile reprint of the 1937 Meccano Catalogue, offering a feast of nostalgia for anyone who remembers the splendid Hornby O gauge trains and vintage Dinky Toys, not to mention the Hornby Speed-boats and the Car and Aircraft Constructor Kits. Though some of the illustrations have inked in a little, the reproduction is quite acceptable and the whole book makes absorbing reading. Price of the 1937 Meccano Catalogue facsimile is 10s. C.O.E.

### 1:100 SCALE VIGGEN

IT seems a pity that both Frog/Hasegawa and Tamiya have decided to manufacture the Swedish Viggen canard fighter before information is readily available on squadron markings for this type. Those modellers who have the patience can, of course, wait until something definite comes available but then it may be difficult to reproduce individual squadron markings without the help of a commercial transfer sheet.

Apart from this the latest Tamiya offering of the Viggen is an excellent kit and a welcome addition to the rapidly expanding 1:100 scale collection being put out by this Japanese manufacturer. It is accurate in outline and easy to construct. There are 44 parts in silver plastic which fit together with ease and the instruction sheet in English is self-explanatory.

Jones Bros of Chiswick supplied our sample which is available at 9s 11d. A.W.H.

### FROM FROG

THREE new kits from Frog, all to 1:72 scale, feature the Tupolev SB-2 bomber, the Douglas Boston (a re-issue), and the RA-5C Vigilante. Of these, perhaps the SB-2 holds most interest as kits of Russian aircraft are few and far between.

The SB-2 will obviously be snapped up by many enthusiasts, so it's unfortunate then that the SB-2 falls well below Frog's recent high standards. The clue to this may lie in the transfer sheet which shows evidence of the Frog style of two or three years ago and has a supplementary sheet included, with additional markings missing from the main sheet. The kit itself has more flash than we've seen in a kit for some time, and some of the parts (in our sample at least) were poorly moulded with the two halves of parts like propellers not matching up at all. In many cases, too, the fit of the parts is not good and it needs considerable work with file and craft knife to get an acceptable

model. However, the SB-2 is an unusual and attractive model, and the kit includes optional ski undercarriage and optional propellers—though no indication of which version has which. Transfers and colour art are provided for Soviet, German, Spanish Nationalist, and Czech aircraft. Priced at 6s, the kit is still a 'good buy' despite its faults.

Second kit is the old Frog Boston III, now re-boxed and given new transfers and presentation. From memory of the original issue, there also appears to have been an attempt to iron out an inaccurate bump from the belly of the fuselage. New and attractive transfers are provided for a RAAF Boston III of 22 Sqn with an optional set for a Havoc Intruder of 418 Sqn RCAF. Particularly with the new transfers, this kit is definitely worthwhile as far as available Boston kits go. Price is 6s.

Finally a magnificent kit, ex-Hasegawa, of the RA-5C Vigilante. In the best Hasegawa tradition this is a nicely moulded kit with all the parts fitting together very neatly. Priced at 15s, it is quite a monster compared with the other two models, and comes complete with a choice of two sets of markings and appropriate colour art on the box. The standard is comparable to that of the recent Frog B-47 kit. All our samples were supplied by Jones Bros of Chiswick, who hold stocks of these and all other Frog kits. C.O.E.

### JOLLY GREEN GIANT

ONE of the most interesting of the recent Aurora releases is a 1:72 scale model of the Sikorsky HH-3E Jolly Green Giant helicopter at present in use with USAF in Vietnam. This aircraft which is virtually the USAF version of the Sea King—certainly in looks—makes an interesting comparison in model form now that the Airfix model of the latter is available.

Both Jones Bros of Chiswick and Model-toys of Portsmouth keep stocks of this model. The price is 15s. A.W.H.



Shown here are examples from an interesting new range of lead figures put out by Les Higgins Miniatures, 52 High St, Hardingshore, Northampton. Top row features the 'Jason' series of 30 mm figures at 4s 6d to 6s each, all covering the English Civil War. Centre row features the 20 mm 'Marlborough' range, 1700-1720, and bottom row features 20 mm English Civil War types. All 20 mm figures are 1s 6d each, or 1s each for a dozen or more. Standard of all these is exemplary, better than most we've seen and our small picture doesn't do justice to the good quality. For a complete list and further details send a large SAE to Les Higgins. For a sample figure send the appropriate cash value.

average model maker to adapt the Airfix Sea King rotor blades and overcome the major failing with an otherwise good kit.

Having 82 parts including the transparencies the Jolly Green Giant is easy to assemble, an attribute common to most Aurora kits. The instruction sheet could be better and it lacks an accurate description pictorially or otherwise of the camouflage scheme. Transfers are inadequate and should be replaced by samples from the spares box.

Both Jones Bros of Chiswick and Model-toys of Portsmouth keep stocks of this model. The price is 15s. A.W.H.

### BERTONE JAGUAR

RECENTLY received from Messrs Jones Bros of Chiswick is the Riko Otaki kit of Bertone's Jaguar Pirana. The prototype was specially designed as an ideal sports car by the editorial staff of the *Daily Telegraph*.

To do justice to all the features incorporated in the original, a model would need to be to a fairly large scale. Otaki of Japan obviously had this in mind in producing the 1:16 scale kit.

It is the most complete car kit we have yet seen and includes practically everything that's on the prototype. Interior and under-bonnet fittings, working suspension with wishbones and coil springs on all four wheels, opening doors, bonnet and rear window to give access to the boot, steering and working headlights.

The model is propelled by an RE 14 Mabuchi motor (included) and gearbox enclosed within a replica of the actual engine, driving the rear wheels via a jointed prop shaft and crown wheel and pinion, these latter enclosed in a scaled representation of the differential unit.

This replica of the Pirana is an excellent miniature at a very modest price. In fact with all this detail a scratch built model could cost thirty times as much. To you the kit costs 5s 11d. B.L.



Hinchliffe Models, 83 Wessenden Head Rd, Meltham, Huddersfield, Yorks, make a good selection of cast metal cannon kits in 54 mm scale. These are expensive but superbly detailed and beautifully moulded. One of our samples was the British 18 pdr gun (6s 5d) and Limber (4s 8d) of 1916 vintage shown here. Other kits start at 17s 5d and there is also a Waterloo gun and limber in 30 mm size. For catalogue send large SAE to Hinchliffe.



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BW4s	Highlander advancing
BW5s	British Fusilier advancing
BW6s	British Fusilier Officer
BW7s	British Fusilier Officer
BW8s	British Guards Officer
BW9s	British Guards Officer
BW10s	British Guards Officer
BW11s	British Guards Officer
BW12s	British Guards Officer
BW13s	British Guards Officer
BW14s	British Guards Officer
BW15s	British Guards Officer
BW16s	British Guards Officer
BW17s	British Guards Officer
BW18s	British Guards Officer
BW19s	British Guards Officer
BW20s	British Guards Officer
BW21s	British Guards Officer
BW22s	British Guards Officer
BW23s	British Guards Officer
BW24s	

# Letters to the Editor

## Electra identified

I WAS interested to see the Lockheed Electra, AX701 in Photopage of the January issue as I flew this aircraft briefly from Castel Benito on February 22, 1943. However, I would question the colour scheme of green, earth and black as, when I flew it, the colour was dark blue all over. The reason for this was that the Electra belonged to Middle East PRU, one of the pilots being one of my pre-war aeromodelling friends, F/O R. E. Walker.

As you say, the aircraft was impressed into RAF service but you may be interested in some further details. The Electra was previously a civil registered, Roumanian aircraft. All the instruments were in metric units which was not difficult, but all other labels and instructions were in Roumanian—not so easy!

The aircraft in the background of the picture is a Halifax of 462 Squadron, RAAF which suggests that it was taken at about the time I flew the Electra. These, the first British four-engined bombers we had seen in the desert, caused quite a stir. This also makes it unlikely that the Electra was in earth and green. If it had been repainted in 1943 it would have been in desert colouring or green and grey, but PRU were usually very keen to keep their own exotic range of colours.

AX701 was not, as far as I know, used operationally but it made a delightful and comfortable communications aircraft. Some compensation, perhaps, for the cramped and lonely hours that PRU pilots had to endure while they were at work.

G. R. S. McKay, Cranbrook, Kent.

Our deduction was made from the original somewhat indistinct snapshot which was the same size as actually reproduced. There appeared to be a variation in tone between upper and lower surfaces but this could, of course, be due to shadow. The light colour of the fuselage serial, however, would certainly be explained by Mr McKay's information on the actual colouring of this machine, as would the B Type roundel on the fuselage. This has suffered from the 'tone reversal' as is quite common with film of that period.—EDITOR.

## Astronaut visors

CONGRATULATIONS to Airfix on two excellent new models of the Lunar Module, and the Apollo Saturn V. I have recently completed the Lunar Module and whilst constructing it discovered an extremely realistic method of reproducing an opaque gold effect on the astronaut's face visors. First a tin of gold paint was left to settle and the thin oily solution which collects on the surface was carefully painted on to the visors. I painted on three coats to achieve a very pleasing finish.

A. R. Saunders, Hailsham, Sussex.

## Cut-out models

I WONDER if any reader of the magazine can help me in my quest?

During the last war and just after, a series of card cut-out and stick models of aircraft were published. I can remember the Blenheim, Spitfire, Hurricane, Boulton

Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters columns. Please note that any letters anticipating a reply MUST be accompanied by a SAE or stamp.

Paul Defiant, Brewster Buffalo and Catalina. No doubt there were more. The wing-spans were approximately 18 inch plus, and were of excellent printing, detail and quality.

I would be grateful if you or any of your readers could tell me who produced these models.

F. J. Boreham, Newquay, Cornwall. I can vaguely recall making some card cut-out models answering this description, certainly the Catalina and Blenheim. Can anyone remember the name of the series, or better still, does anyone still have an example? Another cut-out series which was a favourite of mine was sold in Woolworths for about 3d or 6d and each model came in folder form; the cover featured a colour painting with a history of the aircraft on the back, while the rest of the sheet had a simple silhouette type of cut out (ie, flat one-dimensional fuselage) of the aircraft concerned. Well remembered were Spitfire II, Tomahawk, Airacobra, Lancaster, and Wellington, but there were others. From memory the colours were quite well done and the markings were very realistic. These were sold in the 1943-45 period but none, alas, survived the 'air war' in my school playground where their relative cheapness made them readily expendable in combat.—EDITOR.

## Squadron details

REGARDING the Reggiane Re 2001 R kit by Italaerei which you recently reviewed, I can tell that the two aircraft which are featured on the instruction sheet belonged respectively to 369 Squadriglia Autonoma, 22° Gruppo the first, and to 58° Gruppo the second. On the white triangle would be painted a scarecrow, as indicated on my drawing. I don't know its colours, only that the eight stars were red. I also think that this triangle would be fitted on the aircraft belonging to 369 Squadriglia, but I am not quite sure.



Right: 369

Squadriglia badge as mentioned above

Another thing: at present there are available here in the shops eight old Gloster Meteor 8 kits by Frog. Those who are interested can write to me and I would be happy to obtain them for a suitable exchange.

Alessandro Biagi, Via F. Venuti 15, 57100 Livorno, Italy.

Anyone interested in the Meteor kits, please contact Mr Biagi direct—but remember there are only eight.—EDITOR.

## Cast effect

ONE of the features of the new Japanese AFVs imported into the country is the rough cast effect of the hull and turret. I have found an extremely simple way of reproducing this on Airfix 1:76 Scale Tanks.

(1). Using a paintbrush apply a thin film of Slater's Mekpak over an area of the model to be treated. Leave this for a few seconds and it becomes tacky. The area is then rubbed with a finger, this makes the top layer of the plastic become rough; it is then left to dry.

(2). When dry after a few minutes it is ready for painting, and when painted with the very thin Humbrol Authentic Colours it looks very realistic. This method can also be used for producing a Zimmerit effect, but by using a stiff bristled brush instead of a finger for producing the parallel lines of the Zimmerit paste.

M. C. Grabary, Aylesbury, Bucks.

## Cessna detail

WHILE the Airfix kit of the military version of the Cessna Skymaster is a good one, might I point out a correction I feel should be made to the instructions?

The nosewheel door is behind the nose wheel strut, not in front, as shown in the kit diagram. I have made the civil model of the Skymaster, using, as a guide, the excellent photographs in the October issue of Flying. The cover photograph is in colour and makes a good painting guide for this aeroplane, too.

J. V. G. Francke, London, NW8

## Uniform detail

REGARDING Mr Rust's letter in the January issue concerning the Airfix Waterloo Cuirassiers, I would like to point out two errors. The first of these is that the Cuirassiers were issued with red plumes in 1804, the year they were formed, not in 1805 as stated. The second, more important error was that the red plumes were discarded in 1812 to be replaced by a small flattened disc in squadron colours. Therefore Airfix were correct in omitting the plumes from their models.

James Docherty, Clydebank, Glasgow.

Due to the extra length of several of our main feature articles in this issue it has been necessary to omit book reviews and cut down on Photopage and Readers' Letters for this month only. These will revert to normal length next month. Roy Dilley's new series appears in response to requests from the growing number of model soldier enthusiasts, not to mention model soldiers, as witness our advertising pages. While we cannot guarantee its appearance every month, the article will appear as frequently as possible. Part 3 of 'German Army Markings', dealing with tactical signs, will appear next month.—EDITOR.

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By Michael J. F. Bowyer

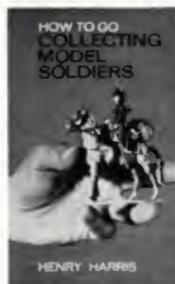
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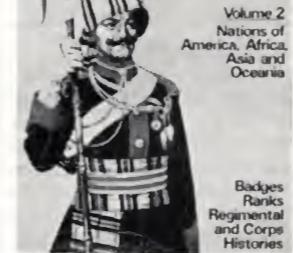
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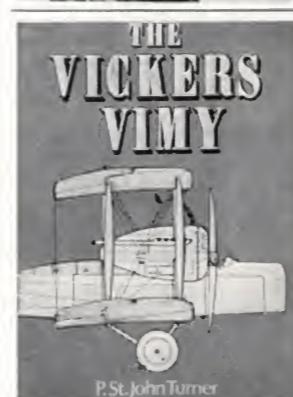
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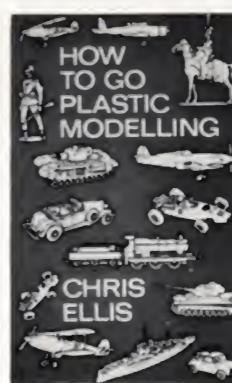
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**STAGE 5** I stuck the interplane struts and the wing-to-fuselage centre section struts into the upper wing leaving these to dry out thoroughly before joining both wings together. New locating holes have to be cut in the fuselage just aft of the cockpit to take the rear centre section struts before finally fixing both sections in place. The undercarriage legs were added but not the wheels, which were painted separately, and not put in place until the rest of the painting had been completed. Similarly the ladder on the starboard side of the fuselage was not glued on until after painting and adding the transfers as this item partly obscures the roundel. Rigging made from heat treated sprue was another item cemented in place after painting.

**PAINTING AND MARKINGS** This model was an easy one to decorate. An overall coat of silver—an ideal subject to do with an aerosol spray can—is given, making sure that the fuselage windows are masked with Sellotape. Interplane struts and propeller are painted natural polished wood in colour and the blue/white/red rudder markings were also painted as I find transfers frequently come off and never seem to be sufficiently accurate for this part when taken from the kit set. Wing and fuselage roundels were taken from the Micro Decals first world war sheet as these are accurate in colour and adhere better than those supplied with the Airfix kit. The aircraft serial was applied to the rudder by Letraset and the items appearing on the red and white paint were given a very thin white outline. The nose radiator and exhaust stubs received a coat of bronze/silver/black mixture to tone them down.



Make a Signal — from page 328

destroyer to wear the flag of an Admiral. Its position depends on the type of ship, and, again, the drawing makes this clear.

#### Making Flags

Thin white paper is the best material for flags because it is easily painted with water colours, and can be faintly crumpled to give an authentic finish. Hoists should be made by arranging the flags vertically beneath the yardarm with a slight gap between each flag, but with the highest flag or pendant 'close-up' to the yardarm. The direction in which they fly depends upon a combination of the true wind and the wind created by the ship moving and is not important—provided everything is blowing the same way! Remember, however, that a ship entering harbour may be moving very slowly, so it is quite likely that the signal flags will be blowing forwards. On the other hand, at speed, they usually blow more or less straight aft.

To mount the flags, cement a small piece of thin extended sprue vertically downwards from the yardarm, and fix the flags thereon. Signal halyards are quite light-weight, so it is best not to extend the sprue to the deck, but to cut it off short immediately below the lowest flag, or the halyard will look overscale.

All flags discussed can be made quite easily with a little care, although the White Ensign and the Pilot Jack are a bit tricky, including as they do, small Union flag in the main design. However, if the following basic steps are taken, the job is well within the capacity of anyone with a reasonably steady hand.

First of all, decide on what flags are required and mark them out faintly in pencil on a sheet of thin paper, leave plenty of space between each flag. If a mess is made of one, disregard it and start again. Secondly paint all the flags in water-colours on one side of the paper, and when dry reverse the sheet and paint the other side. Provided thin paper is used, the design will show through quite clearly.

Finally, carefully cut out the individual flags with very sharp scissors, or with a razor blade. Do not try to be too ambitious with Union flags, particularly the small one incorporated in the White Ensign. The best way to tackle this very necessary flag is firstly to paint in the main red St George's Cross and then to paint in the similar component of the Union flag in one canton. Lastly simply paint tiny dots of blue side by side in each corner of the Union flag canton. Even though the red Saltire of St Patrick is thus disregarded, the overall effect of red white and blue is remarkably good. This procedure can also be adopted for the Pilot Jack. The Union Jack, if flown, is larger and allows the red saltire to be shown, again with a tiny dot of paint.



Top and left: Adding rigging and ladders after painting. Above: Completed model.

Carrier Story — from page 341

specially designed frame was mounted on the modified suspension with the engine and gearbox positioned in the rear. The armoured elevating compartment, which was rectangular in section, fitted horizontally into the frame. This was divided into three sections, the top section holding the driver and gunner who lay side by side. The lower two sections acted as legs; these passed back on either side of the engine to the trunions and were hinged to the rear of the frame. These legs contained the hydraulic jacks and auxiliary suspension, and in addition had the driving controls passing down from the driver's compartment, through the hollow trunions to the engine, gearbox and brakes.

The elevation of the fighting compartment could be controlled by either member of the crew from levers mounted on the floor of the compartment. Steering was applied from the steering wheel in the compartment through cables to a cam, track-warping mechanism, then through cables to standard brakes. Gear changes were operated by Bowden cable control.

Fitted to the nose of the front section was the gun helmet which was maintained horizontally by means of compensating rods for any position of the fighting compartment. Directly above the gunner's head was a mounting holding two Bren guns which were inverted to allow the loading of the 30 or 100 round circular magazines from inside the compartment. The Bren guns could be fired singly or in pairs and were sighted by a periscope. The depression and elevation of the guns was 10°, but an additional 20° depression and elevation was available on the gun helmet, giving 30° in all. The helmet had a traverse of 360°. Armour was  $\frac{1}{2}$  inch thick and the laden weight 5 tons 2 cwt. Height fully elevated was 12 ft 4 ins.

Below: Carrier Flotation with Assault Boats as described in Part 8.



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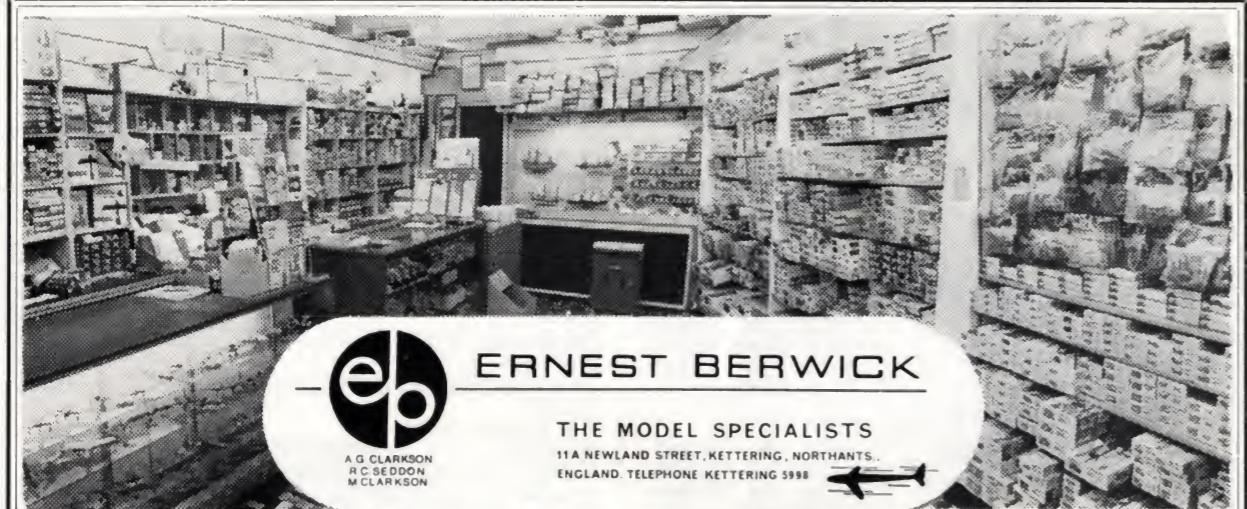
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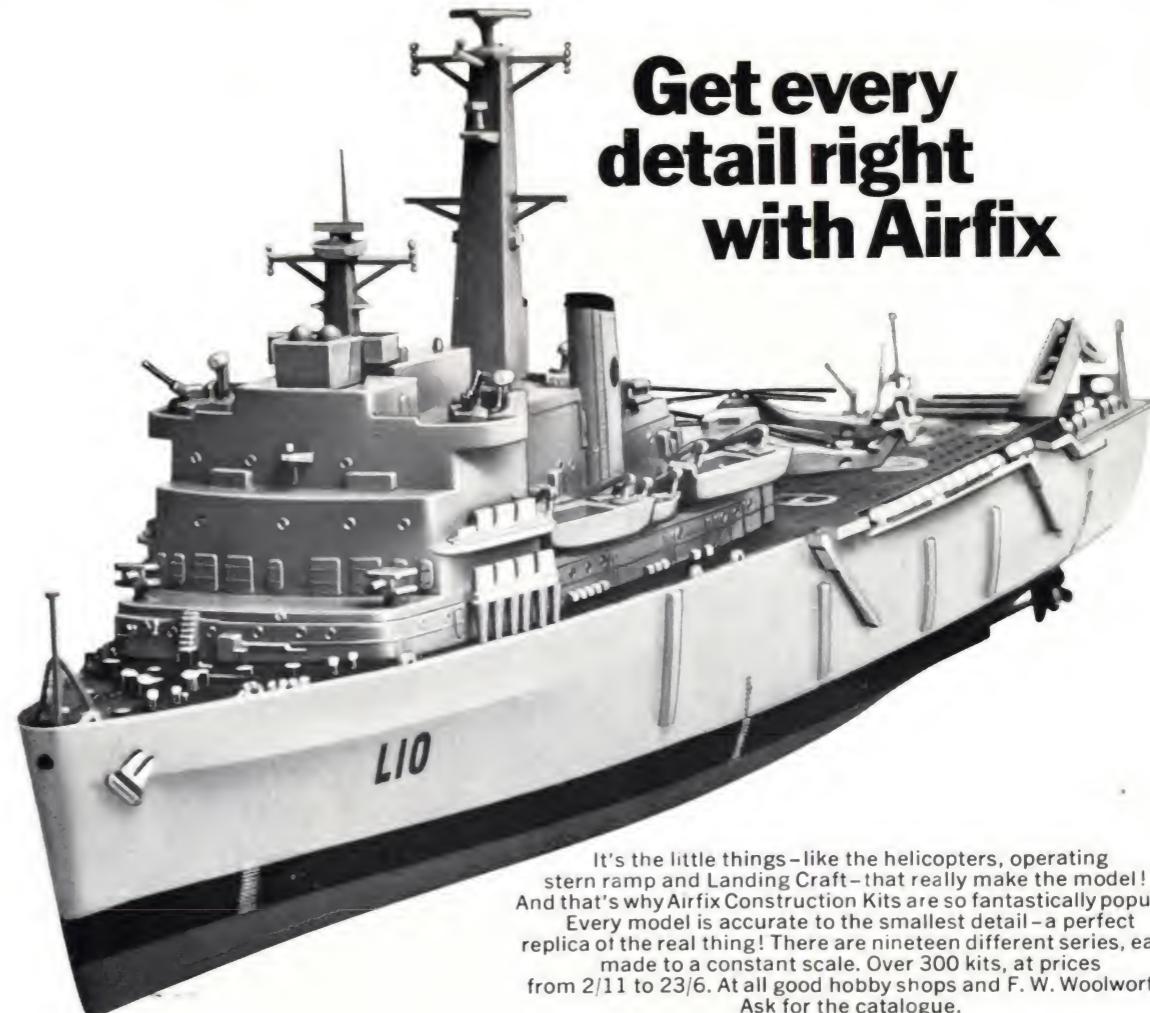
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